

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1726.—VOL. XXXVIII.

London, Saturday, September 19, 1868.

{ STAMPED .. SIXPENCE,
UNSTAMPED .. FIVEPENCE }

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No. 1, FINCH LANE, CORNHILL.
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BARTLETT AND CHAPMAN'S "INVESTMENT CIRCULAR AND FINANCIAL RECORD" for September is now ready and contains a *resumé* of the Financial Business of the months of July and August. Meetings of Dividend and Progressive Mines, Bank Returns, Interesting Articles on Lovell Consols, Great South Chiverton Mines, and the Recent Gold Discoveries in Queensland and South Africa. Post free on application.

JAMES SCOTT AND CO., STOCK AND SHAREDEALERS, 14, PINNER'S HALL, OLD BROAD STREET, LONDON, E.C.

J. S. and Co. are BUYERS and SELLERS, for cash or on account, of shares in any of the undermentioned mines, at quoted or INTERMEDIATE prices (free of commission):—
Anglo-Brazilian 9s to 11s
Bedford Consols 10s 11s 3d
Bedford United £1 1/2 £1 1/2
Prince of Wales 2s 3s
Chontales 2s 2s
Chiverton, (call pd.) 1/2 1/2
Rossa Grande 16s 6d 19s
South Condurrow 1/2 1/2
South Darren 1/2 1/2
South John del Rey 18s 19s
West Drake Walls 6s 6s
West Prince of Wales 7s 7s
West Wheal Seton 15s 15s
Wheat Agar 7s 1
Wheat Buller 5 7
Wh. Chiverton (call pd.) 1/2 1/2
Wh. Emily Henrietta 27 28
Wh. Great Laxey 1/2 1/2
Wh. Great Retallack 3/4 3/4
Wh. Great Wheal Vor 11/2 12
Lucy Phillips 1/2 1/2
Marks Valley 7s 7s
North Treskerby 9s 11s
North Wheal Crofty 1/2 1/2
Pestarena 1/2 2s
Frontino and Bolivia 18s 18s
Great Laxey 18 19
Great Retallack 3/4 3/4
Great Wheal Vor 11/2 12
Lucy Phillips 1/2 1/2
Marks Valley 7s 7s
North Treskerby 9s 11s
North Wheal Crofty 1/2 1/2
Pestarena 1/2 2s
Money advanced on marketable mine shares at 5 per cent. per annum.
Buyers can have transfers registered prior to payment, if desired, on giving respect for the prices.

J. S. and Co. having in their employ several of the most experienced and trustworthy mine agents in the United Kingdom, who periodically inspect on their behalf all the *bona fide* mines in Devon, Cornwall, and Wales, are able to accord to their friends and clients reliable advice as to the present and future prospects of mines they deem worthy the attention of investors.

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60 Bedford Con., 12s. 9d. 20 Gt. Retallack, £3 7 9 50 South Herodfoot, 2s.
10 Cape Copper. 25 Chontales, £2 6s. 3d. 20 Great Vor, £12 16s 3d. 20 Tamar Valley, 11s.
25 Chontales, £2 6s. 3d. 20 Herodfoot, £3 17 6 1 West Seton, £15s.
10 Chiv. Moor, £6 6s 3d. 20 Imperial Mining, £1. 20 Nanglies, £7.
20 Don Pedro, £2 8s pm. 5 Marke Valley, £7 3s. 50 Wh. Grenville, 25s. 6d.
50 Drake Walls, 5s. 6d. 20 Nanglies, £7. 20 Kiddy (St Agnes), £2 24.
20 East Cardon, £2 9d. 40 New Lovell, 15s. 6d. 5 Wh. Mary Ann, £18 1/2 50 Wheal Ida, 5s.
30 E. Grenville, 5s 9d. 50 New Lovell, 15s. 6d. 1 Wheal Jane, £29 1/2 50 Wheal Ida, 5s.
5 East Lovell, £6 3d. 25 North Treskerby, 10s. 1 Wheal Seton, £2 1/2 50 Wheal Ida, 5s.
30 East Russell, 3s. 3d. 20 North Treskerby, 10s. 50 Wheal Seton, £2 1/2 50 Wheal Ida, 5s.
20 Frank Mills, 32s. 6d. 40 Prince of Wales, 36s 9d. 50 Wheal Seton, £2 1/2 50 Wheal Ida, 5s.
50 Frontino, 1s. 9d. 50 Prosper United, 8s 9d. 50 Yudanamuta, £2 1/2 50 Wheal Ida, 5s.
20 Port Phillip, 32s.

And is a BUYER of Tamar Valley, Ross and Chiverton, and West Godolphin shares at market prices.

MMR. GEORGE BUDGE, STOCK AND SHAREDEALER, No. 4, ROYAL EXCHANGE BUILDINGS, LONDON, E.C. (Established 20 years), is a SELLER of the following shares at nett prices:—50 Royalton, 18s. ed.; 20 Great South Chiverton; 50 Caldbeck Fells, 11s. 3d.; 100 West Tremaigne, 8s. 6d.; 100 Glan Alun; 60 Prince of Wales, 37s. 9d.; 70 Camborne Vein, 10s.; 10 Hingston Down; 50 North Chiverton; 50 Okef Tor, 18s.; 2 West Chiverton, £6 1/2; 40 West Drake Walls, 7s. 3d.; 30 East Grenville, £2 1/2; 150 West St. Ives; 10 East Lovell, £7; 5 West Cardon; 20 Ross and Chiverton United; 20 Frank Mills; 100 Redmoor; 50 Bedford Consols; 100 East Bottles Hill; 10 Maevy-Safin, £23 1/2; 100 Crebore, 2s. 6d.; 210 General Brazilian, 4s.; 80 Frontino and Bolivian, 1s. 9d.; 100 Worthing, 12s. 6d.; 30 Cape Copper; 90 Anglo-Brazilian. BUYER of Pendene, West St. Ives, Devon Great Consols, and Minera.

CORNISH AND DEVON MINES.—FOREIGN GOLD MINES.

PETER WATSON'S "WEEKLY MINING CIRCULAR AND SHARE LIST—SYNOPSIS OF CORNISH AND DEVON MINES," of Friday, Sept. 18, No. 497, Vol. X., price 6d. each copy, forwarded on application, contains information on the following mines:—

West Caradon. Prince of Wales. Chontales, St. John del Rey.
Frank Mills. Wheal Mary Ann. Wheal Trevallyn. Don Pedro.
Great Wheal Vor. Wheal Trevallyn. Anglo-Brazilian. 1/2
East Wheal Grenville. North Wheal Crofty. Rossa Grande.
East Wheal Lovell. East Wheal Seton.

With Remarks on Cornish Tin Mines, Advance in the Copper Standard, and Statistical Information on the Tin Trade.

MR. CHARLES THOMAS, MINING AGENT, GENERAL SHAREDEALER, AND AUCTIONEER, 3, GREAT ST. HELEN'S, LONDON, E.C.

Third Edition, price One Shilling; post-free, fourteen stamps.

MINING FIELDS OF THE WEST: A PRACTICAL EXPOSITION OF THE PRINCIPAL MINES AND MINING DISTRICTS OF CORNWALL and DEVON. Published by CHARLES THOMAS, At No. 3, Great St. Helen's, London, E.C.

MESSRS. LANE AND GIBBS, 2, ROYAL EXCHANGE, LONDON, E.C. (Members of the Mining Exchange), STOCK AND SHAREDEALERS, transact business in all kinds of securities at closest nett price for cash or account.

SPECIAL BUSINESS in Great Laxey, Anglo-Brazilian, St. John del Rey, Snaefell, and East Phoenix shares.

Bankers: London and County Bank.

SAFE INVESTMENTS FOR CAPITAL.—Dividends can be secured 10 to 20 per cent. per annum on outlay.

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The September number now ready.

It contains all the best paying and safest investments of the day.

CAPITALISTS, SHAREHOLDERS, INVESTORS, TRUSTEES, will find this Circular a safe, valuable, and reliable guide, containing every necessary information upon British and Foreign Stocks and Shares.

GRANVILLE SHARP AND CO., STOCK AND SHAREDEALERS, 32, POULTRY, LONDON, E.C. ESTABLISHED 1852. Bankers: London and Westminster, Lothbury, London, E.C.

TO SHAREHOLDERS.

TRUMPET CONSOLS (TIN) MINE.—WANTED TO PURCHASE SHARES in this MINE.

Sellers will please state number and lowest price to—

GRANVILLE SHARP AND CO., STOCK AND SHAREDEALERS, 32, POULTRY, LONDON, E.C.

Established Fifteen Years.

MESSRS. WARD AND JACKMAN, STOCK AND SHAREDEALERS, NO. 1, CUSHION COURT, OLD BROAD STREET, CITY, E.C.

Members of the Mining Exchange, London.

Closing prices, Friday Evening, Sept. 18.

Chontales £ 2 1/2 to £ 2 1/2 Providence £ 20 £ 22
Chiverton Moor 6 1/2 6 1/2 Port Phillip 1 1/2 1 1/2
Don Pedro (prem.) 2 1/2 2 1/2 Redmoor 4s 6s
East Cardon 2 1/2 2 1/2 St. John del Rey 1/2 1/2
Great Wheal Vor 2 2 St. John del Rey 1/2 1/2
East Grenville 2 1/2 2 1/2 Wheal Herodfoot 1/2 1/2
East Lovell 6 6 Wheal Herodfoot 1/2 1/2
Great Laxey 18 18 Wheal Treskerby 12 12
Great Retallack 3/4 3/4 West Drake Walls 3s 6d 5s 6d
Great Wheal Vor 11 12 Wheal Seton 1/2 1/2
Herodfoot 39 41 Wheal Basset 60 60
Marko Valley 7 7 Wheal Granville 25s 27s 6d
North Treskerby 8s 10s Wheal Mary Ann 17 1/2 18 1/2
North Wheal Crofty 1 1/2 1 1/2 Wheal Seton 45 50
Prince of Wales 36s 38s Yudanamuta 2 1/2 3 1/2
Messrs. WARD and JACKMAN are DEALERS in all the above at the close market prices of the day.

Messrs. WARD and JACKMAN will forward a correct list of closing prices and statistical information GRATUITOUSLY on application.

Sept. 18. Bankers: London and Westminster, Lothbury.

MMR. THOMAS THOMPSON, MINING OFFICES, 12, OLD JEWRY CHAMBERS, LONDON, E.C.

ROYALTON.—Mr. THOMPSON has nothing further to add to what he has already said in favour of this company. He continues to advise the purchase of the shares wherever they can be met with.

MMR. THOMAS THOMAS, COPPER ORE WHARVES, SWANSEA.

MMR. J. N. MAUGHAN, STOCK AND SHAREBROKER, No. 2, COLLINGWOOD STREET, NEWCASTLE-ON-TYNE.

Bankers: Messrs. Lambton and Co.

MMR. J. S. MERRILL, ASSAYER AND ANALYTICAL CHEMIST, SWANSEA.

MMR. JAMES NANCARROW is ABOUT to VISIT NEVADA, UNITED STATES, and is OPEN to INSPECT any MINING PROPERTY in that or the adjoining States. Will leave on or about the 26th Inst. Address, Belle Vue House, Shrewsbury.

CAPT. RICHARD TABB has just RETURNED to CORNWALL, HAVING been engaged during the past two years as MINE AGENT in NORWAY. He has had much experience in exploring for mines, and is now OPEN to an ENGAGEMENT, on moderate terms, with any party requiring his services. He has had over twenty years' experience in Irish Mines.

References—Mr. A. RICHARDS, Portreath;

Mr. THOMAS ANGOVE, Camberne.

Dated Rainsgate, Camberne, Sept. 14, 1868.

RAILWAY SHAREHOLDERS, or those thinking of becoming so, should READ HANNAM and Co.'s JUNE CIRCULAR, free by post from either of their offices, 449, STRAND, LONDON, W.C., or ROYAL INSURANCE BUILDINGS, MANCHESTER.

FOREIGN STOCKHOLDERS, or those thinking of becoming so, should READ HANNAM and Co.'s JUNE CIRCULAR.

ANGLO-AMERICAN OR ATLANTIC CABLE STOCKS.—All interested in these undertakings, or about to become so, should READ HANNAM and Co.'s MARCH and APRIL CIRCULARS, as well as JUNE CIRCULAR.

GOLD AND SILVER MINING.—All interested, or wishing to become so, in undertakings of this character, should READ HANNAM and Co.'s JUNE CIRCULAR.

Investments may now be made on peculiarly favourable terms in Idaho and Nevada respectively, the richest gold and silver producing districts as yet discovered. The properties noted have been carefully selected and reported on by tried and well-known English agents, and will yield early returns.—Full particulars with JUNE CIRCULAR on application.

MISCELLANEOUS SHARES.—All Investors with spare capital and capable of taking advantage of the opportunities afforded by a panic-stricken community, should make careful selections of shares in selling far below their real value.

For particulars see HANNAM and Co.'s JUNE CIRCULAR, which may be had at either of their offices, 449, Strand, London, W.C., exactly opposite Charing-cross Station and Hotel, or at Royal Insurance Buildings, Manchester.

Parties will do well to consult T. R. as to what shares should be bought and sold.

Money lent upon good mining shares.

Bankers: Bank of England

[SEPT. 19, 1868.]

Original Correspondence.

WORKING MEN'S INTERNATIONAL CONGRESS.

SIR.—This curious assemblage of deputies from working men of many nations, representing every class of extreme opinion, is so important and interesting in its bearings upon the wages question, that I must devote this letter to report briefly and remark upon the discussions as given in the *Times*, regretting I have not the time, nor can I expect you to afford space, to give them half the attention they well deserve. The first meeting, of 73 delegates from England, France, Germany, Switzerland, Italy, and Belgium, took place in Brussels, at 3 o'clock in the afternoon of Sunday, the 6th inst. The head quarters of this association, in which a variety of trades is represented, are apparently at London, amongst the foreign workmen resident there, and a Mr. Jung, of London, was elected president. The yearly report for this their third year was read in English, opening the proceedings. This singular document is a medley of revolutionary politics, socialism, and many of the exploded fallacies of past days, with Trade Unionism, illustrating forcibly my remarks in the first letter of this series on the effects of the character of a conspiracy upon the opinions and conduct of the first Trades Unions in England. From this first stage Trades Unions on the Continent apparently have not advanced; and to the evil influences of this state of things is added a plentiful crop of the extreme political absurdities which took root in the first French revolution, and, though bearing much evil fruit abroad, were generally rejected by the good sense of the working classes in England, even in far darker times than the present. Indeed, these crudities are hatched and nourished by the oppression of despotic Governments, and are soon dissipated by the healthy air of freedom. Of these these discussions give clear proof, for the little good sense leavening the huge mass of absurd crotchetts and theories spouted there comes chiefly from Switzerland, Belgium, and Italy. I regret to see England not contributing any fair representation of the advanced intelligence of our working men, but this arises from the element already noticed of foreign workmen, of which the English contingent is mainly composed, who obviously have advanced little, if any, beyond the purliness of their countrymen on the Continent. Mr. Ruskin would be far more in his place here than in our social science meetings in England. He would be "a one-eyed monarch of the blind: a triton amongst minnows." His crudest theories and most fatuous propositions would here be lauded as oracles, and fairly outdone by the absurdities vented by his hearers. As the *Times* well remarks, in a series of excellent leaders on the proceedings of this Congress, the whole tone of what is uttered breathes the utter absence of any experience of freedom, any reference to existing recognised rights.

In England all this is wholly different, and we are forcibly reminded of the enthusiastic admiration of Montesquieu for the Briton's sense of freedom as his birthright of the soil. And with this sense of right goes the sense of duty. A comparison of the standpoint, as taken by this Congress, with that of our most extreme Chartists, in the times when Chartists were, vividly shows the value of this blessing as saving us from all chance of extreme revolution. Our Chartists, as their very name shows, sought to restore what they alleged to be ruined and corrupted, to claim rights to which they were entitled by the law of the land, which they thought unjustly withheld from them. These delegates seek their foundation of rights in abstract general theories. They are Arabs—their hand against every man, proclaiming war against all Governments, all classes save their own, seeking to destroy where the Chartists aimed to reform. Hence this Congress is a crusade against society as now existing in all its elements. State, church, property, all are in the hands of fancied enemies, and used for the oppression of working men. But this very title of working men needs correction—they properly style themselves *proletarians*—a very meaning word when traced to its origin, originally the title of those citizens in the Roman Republic who had nothing, and could only contribute their *proles* (Latin for children) to the service of the State. An English rated workman with a vote is far above this destitute class; nay, properly belongs to those with whom they are at war—men possessed of some property. Hence the proceedings of this Congress are stamped with all the inconsistent absurdities inevitable in every attempt to make out by discussion the right of the *wants* to all the belongings of the *haves*. The only strict logical argument the case admits of is that of force. The only reply to the robber putting a pistol to your head, with "Your money or your life," is to fight or yield. This is obviously the state of society of savages alone, verifying the remarkable saying of Proudhon, that "property is a thief." The thief who has got his neighbour's money, by this possession at once passes to the class of men of property, whom the next *proletariat* he meets may rob in turn—if he can. This, on close examination, proves to be the foundation on which this International Congress fancies it possible to build a scheme for the benefit of the lowest class. Let us illustrate by a brief review of their proceeding the contradictions and absurdities to which it leads them, pointing out where a gleam of good sense now and then beams through the darkness, encouraging us to hope that by persistence in meetings and discussions, guided by the light of the progress of our working men in England, this International Congress may in time work good out of evil, and arrive at some knowledge of what are really the rights and interests of working men, and what is the best mode of securing them.

From the first word of their yearly report to the last utterance of the speakers debating upon its contents, almost every sentence is inconsistent with what goes before or follows. Beginning with loud complaints of the repression by Government of all their discussions, especially in France, they go on to prove, by the open declaration of war against all institutions and all property, that what they denounce as cruel persecution is merely the exercise of common care for the preservation of society as it exists at present. If their proceedings threaten to assume any prominence or importance they will soon find Brussels and Geneva as fast closed against them as Paris. They will, I suppose, then be driven to London, as the only place where an old Government is so firmly established, and such deserved reliance placed in the good sense of the mass of the people, that liberty of speech is wholly unbridled, unless where directly inciting to breaches of the law. But it will not be safe to carry on their debates here in English, lest some sensible, long-headed workman who may happen to attend a meeting blows their whole fabric into air by a pitiless exposure of their absurdities. Denouncing war as a waste of the resources of a country, they look with complacent approval on social war, the worst and most destructive kind of warfare, and applaud the Fenians, who did all they could to destroy every chance the poorer classes in Ireland were beginning to have of rising to better things, by disturbing the country with turbulent aggressions, rendering life and property insecure. Bitterly denouncing capital and machinery as means of their oppression, they cannot escape from the instinct that without some fund to pay for his work the labourer must starve, and that machinery does much severe and ill-paid work for him. Therefore, they would replace the masters (all along looked on as their worst enemies) by co-operative societies, to possess capital, in the delusion that every man would thus become his own master, and that machinery, in these safe hands, might possibly do them some good. They cannot see this is deserting, in a body, their friends the *proletarians* (of whom a large mass would remain who possess nothing), and passing over to the ranks of the oppressors they denounce, rendering needless fresh congresses of those left in the cold to denounce them in turn. Decrying money wages in a way that would delight Mr. Ruskin's soul, they mostly defend and approve of strikes to get a larger share of these same money wages which they have just declared to be one of the sources of their oppression.

Desiring education, their committee, appointed last year to report on the best means of securing it, frankly confess they have come to a dead lock, and cannot see how to get on. Who is to superintend it? State, clergy, upper classes, all alike denounced and mistrusted. Where is the funds to come from? They see no answer to these questions, and ask another year's time to frame some recommendation. Briefly, they want to get hold of everything, and, if they can help it, neither give nor do anything for it. Nowhere is there any recognition that upon the prosperity of business depends the fund to pay wages, as well as to pay the profit on capital; and that so far the interests of the men agree with those of their masters, and that capital and machinery are the tools of both, to be used as well as possible

for the good of both in securing this common success, without which the masters would be ruined and the workman starve. They utterly fail to see that for this reason, could they succeed, their proceedings are as suicidal as the folly of the drunken man, in Hogarth's print of an election, sawing off the pole on which he sits astride to bring down a rival sign, forgetting he goes to the ground with it.

We have said there are some glimmerings of better sense amongst all these foolish utterances, leading to a hope of many of the follies working themselves out in time. Antwerp, Brussels, and Geneva send reports and delegates, in which some perception is evinced that conciliation is better than striking, that the proposal to do away with banks and lending money on interest may do more harm than good, seeing we have not reached the golden age when men lend for pure love to all that ask, expecting no return. I would point especially to one proof of the honesty of the management of the Geneva combination—they only ask 3d. a week from their members. It is clear there cannot here be a host of paid leaders fattening at the expense of their fellow-workmen.

So, on the whole, we are not unwilling to hope this Congress may yet do some good work in elevating the condition of the working class, if they can only take a departure from their sentimental follies, and take up things as they are in a common sense spirit. Instead of denouncing all the upper classes, let them show some thankful recognition of the helping hands so many amongst these classes now hold out to them. Instead of classing all employers as tyrants, let them gratefully acknowledge the efforts many of them make to promote the good of their workpeople, and strive to extend the numbers of those who are really, if they only had sense to see it, the best friends they have. Let them emulate the sensible proceedings of the great meeting reported in the *Mining Journal* of Sept. 5, and "take a leaf out of their book."

Another conclusion may be drawn from these exhibitions of agitation amongst working men in so many forms. The time is now ripe for the formation of really good Trades Unions amongst the masters, holding out the right hand of fellowship to really good Unions amongst their men. The good that might thus be done would be immense, and the best solution would thus soon be found for most of the worst of trade difficulties, especially all arising from ill-will and misunderstanding. I regret being forced to leave unnoticed much interesting matter turning up in this week's news, and defer the concluding remarks on the main points of my subject yet unnoticed to my next letter.—London, Sept. 15. A MAN OF EXPERIENCE.

CAST-IRON AND CAST-STEEL FOR FORTIFICATION PLATES.

SIR.—Almost all armour-plates rolled in the manner hitherto in use contain, especially if of considerable thickness, here and there many flaws, or spaces, where the sides of the thinner plates, or slabs, of which the thick plate is composed or "built up," are not perfectly welded together, such flaws being, of course, a source of weakness to any plate. The chief objection against cast-steel or cast-iron plates consists in their brittleness, I believe, that this defect would be considerably neutralised by casting compound plates, such as I proposed some time ago—that is, plates (of greater thickness, of course, than any rolled plates) whose principal bulk is composed of cast-iron or cast-steel, while their shot-exposed front is formed of forged or rolled softer metal. To do this we take a plate of soft iron, place the same (say) in the bottom of the mould, cutting a sufficient number of retaining (dove-tail or otherwise shaped) grooves or indentations into the back of said soft plate, heat the said plate up to such a temperature as to meet all difficulties arising from expansion and contraction, and then run the molten metal into said mould, in such a manner that the molten metal, on cooling, would have completely incorporated the soft metal front facing plate.

I feel convinced, and beg to record it here as my opinion, that such compound plates, whose thickness may be increased to any amount, and where, besides, a very large amount of expensive trimming, planing, &c., is dispensed with, will prove the cheapest and most efficient ones; and, believing that there may be many of your readers willing to compete in supplying metallic armour for defensive purposes, but who may not deem it worth their while to erect expensive plant and machinery for rolling very thick plates, I send you the above hasty remarks.—Sept. 17. G. J. GUNTHNER.

TRAMWAYS ON COMMON ROADS.

SIR.—The continually increasing traffic in the public streets, and the enormous wear and tear occasioned thereby upon the ordinary pavement or macadam, has led many to the conclusion that the introduction of street tramways is a necessity of the day; but the question this naturally gives rise to is by whom should they be laid, and in what part of the roadway should they be placed? For my own part I consider the laying of tramways by companies or individuals to be highly objectionable, as, if laid at all, they should be for the general public good, and laid at the joint cost of those who have at present to make the roads and those who use the ways. How, then, can this be done? We must have an efficient system, which can be used as public property, without causing inconvenience to those who do not use the ways, and we must devise a means of obtaining payment from the users. Now, amongst your references to the novelties exhibited at the Paris Exhibition I noticed that in the American Department Mr. Z. Eastman, the United States Consul at Bristol, showed an arrangement of tramway that could be utilised by the majority of carriages using the road. The invention has since been offered, I think, gratuitously to the public, so that it might be at once adopted without expense, except for the actual cost of the iron and laying.

The rails designed by Mr. Eastman are, taking the description of your correspondent, slightly grooved, and furnished with notches along the side, to prevent the possibility of slipping, and are to be laid slightly below the level of the pavement. The rails are narrower than the width of the horse's feet, and the feet will not slide on the rail, as it is not likely that the foot can strike upon the rail in any part where the notched edges will not hold it. The running surface is only slightly concave, so that although no difficulty will be experienced in keeping the wheel upon the rail, no facility is offered for the accumulation of dirt or other obstructions; and as the rail is provided with a flange or stiffener on the under side, great strength is obtained without unnecessary weight. The rail is, in fact, a T-iron, with concaved top and notched sides—the inventor believes that cast-iron may in many instances be used, but upon this point he will probably change his opinion, the form of rail being so simple that the difference of price would be comparatively unimportant. In adopting Mr. Eastman's invention, it not necessary that any change whatever should be made in the paving, if change be objected to; but he suggests that by the use of longitudinal stringers or sleepers, and the filling in with wedge-shaped blocks, so as in a measure to present the form of an arch, the paving can be made much stronger and more durable than ordinary. The great weight of vehicles will be upon the rails, and they furnish a broad supporting basis, so that the general surface will have no tendency to sink in spots, as at present. The carriages specially constructed to run upon these rails will be provided with wheels having convex rims of smaller circle than the concave of the rail, which makes a small bearing point of the metal to sustain the weight of the carriage, and, therefore, the wheels run with little friction. With this form of wheel there is no tendency to leave the rail accidentally, yet it is easy to pull out, if required, to pass another vehicle going at a lower speed. There are no flanges used, and as the wheel axles are cranked, the centre of gravity is as low as possible, and by a peculiar mode of constructing the axles, the hind wheels always run over precisely the same spot as the front wheels have traversed. These radiating axles enable the shortest curves to be turned without friction.

From this description it would seem that anyone possessing a vehicle could at a small expense have it adapted to suit the trains, and thus be enabled to do the same amount of work on the rails with one-tenth part of the strain upon his cattle, whilst those who decline to use the improvement could continue to use the road, as at present. It only remains then, to devise a means for meeting the cost of laying the rails and keeping the ways in order. The large number of new main streets now making in London would permit of the improvement being carried out at a minimum outlay, and with maximum advantage. A double line of tramways along the centre of the road from the Marble Arch, by way of Oxford-street and the Holborn Viaduct, to the General Post Office, with a branch from Hatton-garden, by way of the new street, past the Dead Meat Market, and a second double

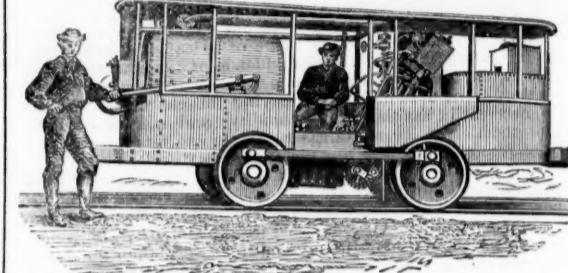
line from Paddington to the Elephant and Castle, by way of the Marylebone, Euston, Farringdon, and Blackfriars roads, with a branch through Southwark-street to Dockhead and Tooley-street, and another along the Embankment to Westminster, would wonderfully relieve the traffic, and cost comparatively little—certainly not more than the laying of the ordinary paving for the same distance. The cost might be provided by the Board of Works and the City respectively—each upon every carriage of a gauge corresponding with the gauge of the tramway. By this means the tax would be entirely voluntary, whilst a very important improvement would be secured to the public, at scarcely more than the cost of keeping the present roads in repair. It would be satisfactory to learn from Mr. Eastman, or some other engineer, the probable aggregate cost for the system proposed, or per mile, which would have to be provided for.

CITIZEN,

UNDERGROUND LOCOMOTIVES.

SIR.—The great saving effected in the cost of transportation by the introduction of railroads was due principally to the fact that the work formerly done by animal power was then performed by machinery. The locomotive was the great economy; it is not, astonishing, therefore, that many attempts have been made to introduce it on our mine roads, though, for many reasons, its successful application has not been effected, to my knowledge, till recently? Some months ago, Mr. Thos. Phillips, mine agent of the Lehigh Coal and Navigation Company's Panther Creek Mines, proposed to the company to have a small locomotive, suitable for mine work, constructed, and, having had his proposal approved, he now has the credit of being the first in this country to use successfully the locomotive for underground work. The subject is worthy the attention of your readers; I need, therefore, make a statement of the estimated saving effected by its introduction.

I beg to send you a stereoscopic view of the locomotive as it stands ready for work near the entrance of the mine. Its principal dimen-



sions are—Length over all, 12 feet; width, about 4 ft. 4 in.; height from rail to top of stack or roof, 6 ft.; weight, with coal and water, 11,000 lbs. It rests on four wheels, all drivers, about 2 ft. in diameter, about 5 ft. 6 in. apart, and running on a 3 ft. 6 in. gauge of track. It works with cog-gearing and two inclined cylinders. The wheels have "inside bearings." Weight of rails, 40 lbs. per yard; cost of engine, \$2800—say \$3000 at the mine; manufactured by Messrs. Grice and Long, of Philadelphia. The locomotive runs outside from a "coal breaker," about 2000 ft. to the mouth of what is known as "Tunnel No. 5;" thence underground, partly in rock tunnel, and partly in a gangway driven in the coal, for a distance of about 5500 ft., or a total distance of 7500 feet. This tunnel has a sufficient grade to make the work of drawing the loaded wagons ("cars" in this part of the world) out about equal to that of drawing the light wagons in. These wagons have a capacity of 99 cubic feet, and yield about 2 tons of clean, "prepared," coal. The "train" is made up of from 15 to 20 wagons or cars; it requires 7 mules to draw a train. The power of the locomotive is from 15 to 20 cars, according to the state of the road; it draws them round a curve of 75 feet radius, and its maximum speed is 9 miles per hour, though it does not run at that rate in the mine. The coal is the hardest kind of anthracite, so there is no danger whatever of its catching fire from the engine.

The following comparison of the cost of underground conveyance by locomotive and by mules is based on a production of 600 tons of clean coal per day, a capacity the mine is equal to, though it has not yet attained it: it will require, therefore, the moving of 300 wagons of coal, and about 40 tons of slate, waste, &c., per day. To do this amount of work requires the distance of 7500 ft. to be divided into three relays; there are, consequently, three sidings for passing cars, three teams of seven mules each, and 60 cars on the road at a time. It requires 20 cars to be in the mine, and 20 outside—in all, 100 cars to do the work when mules are used. The wear of the road by the mules requires the constant labour of one man to keep it in repair. As the locomotive can make the trip in and out in 30 minutes, taking a train of 15 cars—there are but 15 wagons on the road, 15 in the mine, and 15 outside, or (say) 50 wagons suffice to do the same work as it requires 100 to accommodate when drawn by mules—a saving of 50 wagons, costing \$125 each, is effected. In this mine, owing to the high inclination (60° to 80°) of the seams, and their great thickness (20 to 50 ft.), one miner, with one labourer to load the coal, can cut 14 tons or seven wagons per day. This is more than can be done in other anthracite regions, where it is usual to count 10 tons per miner per day. It requires, therefore, 43 miners and 43 labourers (loaders); these men are conveyed to and from their work on wagons; there is a saving of 15 minutes each way in hauling these with the locomotive, or four days, at \$2 per day, saved in this item each day. Making a comparison of the working expenses of these two motive powers, we obtain the following figures:

| | MULES, PER DAY. |
|--|--|
| 1 engine | \$3.00 21 miles, at \$1 |
| 1 boy | 1.75 3 drivers, at \$2.10 |
| Repairs, oil, fuel, &c. | 1.55 Extra cost, keeping road in repair 2.00 |
| Total | \$6.90 |
| Balance in favour of locomotive, \$23.00. | |
| In first cost we have— | |
| Locomotive | \$ 8,000.00 21 miles, at \$200.00 |
| 50 mine cars | 6,250.00 100 mine cars |
| 1 siding for engine..... | 1,000.00 3 siding for passing wagons. 3,000.00 |
| Total | \$10,250.00 |
| Balance in favour of locomotive, \$9,450.00. | |
| Counting interest at 10 per cent, on first cost saved | \$ 945.00 |
| Saving of \$21.00 per day for 200 working days | 6200.00 |
| Keep of 21 miles for 100 days (during winter), at 20 c. a-day 420.00 | |
| Making a grand total of | \$7656.00 |
| saved per year, or over 6c. per ton on the coal taken out. | |

And this when we neglect such important items as wear and tear on sinking fund, which is very much heavier for mules than for the engine. We count that the greater cost of using 40-lb. rails, in place of those weighing 28 lbs. per yard is balanced by the greater durability of the former, and by the greater duration of the "ties," which are quickly worn out by the mules. We find, therefore, that the locomotive will pay for itself two and a-half times each year when it does the above amount of work—and its ability to do it has been abundantly proved.

The question of vivifying the air of the mine, or more particularly of the tunnel, has not escaped my attention; in fact, that is likely to be the most important question in its introduction into our anthracite mines. The tunnel in which the present engine is now working is well ventilated; there is also an upcast air-shaft to the surface, at the inner end of the gangway, and the engine stands under this when not running. As the wagons and engine nearly fill the section of the gangway, it follows that when running there is an "eddy" formed behind them, where the gas from the locomotive collects. After a certain time this becomes somewhat disagreeable to the breath, though by no means to such an extent as to be injurious in any perceptible degree to the health of the men. I examined the subject in person, and can speak with confidence; but in an ill-ventilated mine, where the engine is constantly on the road, this may become a consideration of the gravest importance.

This is the first instance where the mine locomotive has been successfully employed in our American mines, though I understand one has very recently been made for the bituminous mines near Pitts-

burgh, Pa. Its success has been so gratifying that the Lehigh Coal and Navigation Company propose having two or more built for a similar use. I should like to hear what the English miners have to say about it.—*Wilkes-Barre, Pa.*

R. P. ROTHWELL,
Mining Engineer and Metallurgist.

PEAT FUEL MANUFACTURE.

SIR.—Your correspondent "F. R. D." in his letter of Sept. 8, states that Mr. T. V. Lee, in the conclusion of his process, subjects the blocks, saturated with oils, to the influence of *surcharged* steam, of 400° or 500°, and that then a blast, I presume of air, is driven through the blocks of peat, "for restoring the cohesion and density, which had been previously disturbed by the heat and pressure mainly employed for the purpose of fixing the hydrocarbons in every particle." Now, is your correspondent quite sure that the blocks had been subjected to heat? In a work of 1829 it is said—"Mr. Watt found that the latent heat of steam is less when it is produced under a greater pressure, or in a more dense state; and greater when it is produced under a less pressure, or in a less dense state," and *escaping* steam, I believe, is cold in proportion to its being "surcharged." Perhaps your correspondent will be so good as to tell us what high-pressure steam is surcharged with to produce the cold, it being, unquestionably, highly important that we should see our way a little more clearly than we do in these matters, there being, in this one operation, much loss of labour, which we can ill afford. The "pressure" of the steam, although at 500° in the boiler, ceases immediately the steam escapes; and if the heat, the only agent left, have the property of fixing the hydrocarbons in every particle, it should likewise give, and not take away, cohesion and density.—*Sept. 16.*

F. C.

HOME ENTERPRISE—OUR MINERAL WEALTH.

SIR.—I respectfully request as a favour your insertion of the following in your columns. To my mind, our nation at present resembles a flock of sheep, as the mere rustle of a leaf, in the shape of a slight fall in the funds or railway dividends, or a rumour of war, &c., startles it, but this timidity, I am persuaded, is to a large extent groundless. The nation, however, having this characteristic of the sheep, necessarily has the other—stupidity; and so, as opportunities present themselves, its capitalists rush into the very hazardous regions of foreign loans.

Foreign countries have been quick to discern this state of things among us, and, knowing we are burdened with a perfect plethora of money, consider it a capital time to relieve us of our superfluity; and how well they have so far succeeded we all know, but, like blood-letting, I fear the remedy will be found to be worse than the disease. My earnest advice to the capitalists of this country is in every legitimate way to promote home enterprise, instead of entrusting their money for foreign purposes, to be applied they know not how, and my honest conviction is, were they thus to act, they would derive advantages much more satisfactory than they can possibly do from foreign investments.

A few years back I was over a considerable part of the South of Ireland, and there saw thousands of acres of rich virgin soil, which would yield the most satisfactory returns were the requisite capital and skill brought to bear upon it, but which was almost wholly neglected, and I believe is so up to the present time. Doubtless in other parts of that country the same thing holds. In the same region—the South of Ireland—I was over a large tract of copper and slate property, all on the seaboard, and of the most promising character, as I ascertained from not little investigation, but, like the land I have referred to, totally neglected. Then, coming to England, I have frequently been over all the country, from Keswick on the north and Barrow-in-Furness on the south, in the way of business, and had every proof of its being full of minerals, in the shape of lead, copper, and ironstone; but, as regards the two first, it might as well, to a great extent, not exist, though I am persuaded it will yet be a busy hive of mining industry. Further, about six weeks ago I travelled through the island of Islay, on the western shores of Scotland, and there witnessed extensive and profitable operations going on in lead mining; and there being about 36 square miles of mineral property there, chiefly lead, there is ample room for many more mines being developed, and I believe this is highly worthy of the attention of capitalists.

For some time past there has been a cry that the mineral wealth of Cornwall and Devon is about exhausted, and that we must now look exclusively to foreign countries for the needed supply. I neither believe the one nor the other; but, supposing the former were true, there is no need for capitalists rushing to foreign countries in search of minerals when such localities as I have named exist, and many such, I believe, do exist in our own country.

Besides, from all I have been able to gather, for one foreign mine that pays, six will be found in our own country which pay. There is, therefore, every reason, in my judgment, why the capitalists of this country should stimulate home instead of foreign enterprise, not only as regards mining, but other branches of our industry; and, seeing the continued and almost universal stagnation in business, which is subjecting vast multitudes in our country to great privations, those capitalists would be regarded as benefactors who would come boldly forward and endeavour to take the lead in renewing and reviving legitimate home enterprise.

OBSERVER,

THE PROGRESS OF MINING—AS A SCIENCE, AND SOURCE OF COMMERCIAL WEALTH.

SIR.—The weather is delightful in these parts; the valleys full of sunshine, and on the hills the air most healthy. A ramble amongst the Welsh mountains is the most invigorating occupation I can conceive. However philosophers may tell us that air consists of the same quantities of oxygen and nitrogen in every situation, I cannot divest myself of the feeling that there must be a great deal more of the life-giving principle in the atmosphere on these Leviathan crests than in the dusty streets of London, or any other crowded town. And, then, the water is so fresh, so pure, and so crystalline, that in drinking it you seem to be swallowing frozen ether.

Hearing that a trial had been undertaken, on the top of the Darren hills, upon purely scientific principles, without any indications of lodes on the surface, for the discovery of the junction of the Great Darren and Cwymyslog lodes, to the west of those mines, I, accompanied by some friends, took a stroll up these ridges, for the purpose of examining the progress made, and the effects of the work. It seems that, knowing these lodes approached each other from Darren Mine, at an angle of 130°, some agents had dialled the ground, and laid out a shaft. This shaft, when we saw it, was from 5 to 6 fms. deep, and in the heads of ground, which were cemented together by spar, stars of lead ore are distinctly visible. In one instance a small piece of solid lead, of the size of a hazel nut, was found formed in one of the crevices. They call this mine the Junction Mine here, it being at the meeting of two of the richest silver veins in the country. The work done in the old hillocks and shafts, according to the present yield of silver, bears evidence that from first to last not less than 500 to 600 tons of pure silver have been sent away from the Darren and Cwymyslog Mines. Most likely I am far under the real quantity in estimating it at this amount.

From this point we rode away over the Great Darren and Cwm-sym Mines, the site of the operations of Sir Humphrey Mackworth, Mr. Bushell, and Sir Thomas Bonsall, and the places to which that "connynge" workman, Christopher Schut, directed his attention by order of our mighty virgin Queen Elizabeth. For two miles we continued our route, over heaps of waste mounds, that indicated the positions of the cottages and gardens of a bygone race, situations where the water-wheel of antiquity has given way to the lordly steam-engine, which with its strong arm lifts the water with the greatest ease for working 100 fms. deep, which in the days alluded to—say, 250 years ago—must have been attended with infinite difficulty in keeping the works clear of water at 20 fms. under the adit. These immense hillocks are now covered with splendid modern water machinery, in addition to the steam-power, beautiful drawing machines, pumping and crushing machinery, capable of reducing scores of tons of rock per day to the finest description of sand and slime. In fact, although hundreds of years have elapsed since those great mines were the scene of the busiest occupations of the human family, they are still as thickly populated as ant-hills.

Towards the close of the day we found ourselves travelling through

Bwlch Consols, homeward bound; but it was not destined that we should finish our occupation thus. A good Providence had determined otherwise, for Capt. Northey, the manager of Bwlch Consols, saw us—and with him to see was only another word for placing his hospitality before us, which at that time, after so long a ramble, was not unwelcome; and although we, with our usual modesty, at first rather seemed to hesitate, all resistance was unavailing. Besides, I had to thank Capt. Northey for an act of courtesy manifested to myself and some great miners who came up a few days before.

But I must confine myself to the spirit of the subject of this epistle—the Progress of Mining; which I shall attempt to do under the head of Ore Dressing. It seems that Capt. Northey has for some time conceived the idea of doing all his dressing by machinery, and, as usual, we found the girls in alarm, fearing their occupation would be gone. As this is a matter of great practical importance to mining, I will try to describe the means provided in these mines for doing away with hand-labour. It is obvious that if all the operations of lead ore dressing could be performed by machinery a great saving in cost would ensue. Captain Northey commences his revolution in dressing at its delivery from the crushing rollers. In the old practice the lead ore fell into the cover or head of a long bubble, and on being stirred about by means of a shovel, the fine ore settled on the bed of the long bubble, and the coarse was shovelled up for jiggling. Instead of this, Captain Northey has substituted a round receiver, like a tub, agitated by iron arms, revolving in it horizontally. The motive-power is a water-wheel at the bottom of the flooring, which dominates, by means of skilfully combined appliances, every operation on the floors, and that almost by the slightest touch of the hand. At the foot of the agitator there is a receptacle, in which four shovels revolve perpendicularly on arms fixed on an axle, which raise up the coarser ore, and drop it on a screen through which any fine ore might pass, while the rougher is delivered to be jigged by machinery; but the great body of the fine ore passes on to a series of beautifully arranged round bubbles. These are splendid machines. The centres, for about 8 ft. diameter, are raised about 18 in. above the surrounding plain. The ore is distributed over the centres by means of revolving iron shoots, and the second part of the bubble, into which the ore falls, is a continuous or circular inclined plane, calculated to effect the work of the old flat bubble, but in more complete manner. The inclined plane is surrounded by a foss, or drain, with a fall so arranged that the waste passes off by specific gravity. If the whole arrangements answer the purpose, Captain Northey calculates to dress 20 tons of ore, or 300*t*. worth of produce, more monthly in future, for the same dressing cost. The fear of the dressing girls being out of work is groundless, as there will be plenty of work for them in separating inferior ores for the crusher, an operation that will prove a new source of profit to the company. I found, through the courtesy of the manager, that there are great reserves of ore thrown open underground in this mine, that cannot be exhausted for years to come, thus stamping the affairs of the mine with an impression of solidity and permanency not often found in mining.

M. F.

of the timber, gained "from the most reliable testimony of persons who live in the locality of the property," was met by one of the directors at the general meeting, held last November. "It was true," he said, "that unless more timber were discovered, some difficulty might arise in future years, but there need be no anxiety upon that point, inasmuch as a Bill had been laid before both Houses of Assembly, authorising the construction of a railway for 200 miles north of Port Augusta, which would go within 10 miles of the Blinman Mine." It was further stated that "this railway would, in all probability, be completed many years before the firewood became exhausted."

How was this conclusive fact received by the undaunted representative of the "bears?" In this wise—"That he could inform shareholders of something they did not know, the truth of which they might ascertain by calling upon Mr. Dutton (the agent for South Australia). What did Mr. Dutton say?—Why, that nothing so glaringly absurd could be mooted as this railway." This, naturally enough, came to the ears of Mr. Dutton, who immediately communicated with the directors, and informed them that "he (Mr. Dutton) had made no such statement as that imputed to him." And that the matter is not quite so "glaringly absurd" as some people would have us believe is shown by the circumstance that the Bill has not only passed, but that the railway has been commenced.

The material question, however, which just now seems to be disturbing the equanimity of the operators in the shares, is as to the source of the now famous telegram, announcing the discovery of a seam of ore richer than the Burra Burra." Now, whether this telegram be a forgery or not is to my mind a matter relatively unimportant, since we have received the intelligence from our superintendant that a "new and important discovery" has been made, that in one part of the mine "there is a lode of 4 to 5 ft. wide, of not less than 35 per cent., the floor being as solid as an anvil," which, as you explained last week, must be worth something like 25*t*/ft. per fm.; and that in another part, where the "new and important discovery" has been made, there is "a splendid lode of ore, 7 to 8 ft. wide—one of the best lodes in the mine" which, as you also explained, must be worth 35*t*/ft. per fm. We are further informed that "the mine is improving the deeper they go, and may now safely take its rank as a permanent mine."

The point, therefore, for *bona fide* shareholders to ascertain is—not whether Mr. Flivash did or did not send this telegram, but whether the Burra Burra did ever possess, even in its palmiest days, a "seam of ore" of such value as that now being worked at Blinman. If it did not—and no one is better informed upon the subject than Mr. Paxton—the telegraphic announcement is literally true.

City, Sept. 14.

ONE WHO IS NOT A "BEAR" OF 1000 SHARES.

MINING IN NEVADA, U.S.

SIR.—By inserting a few lines in your valuable Journal from this part of the globe, I think you will be conferring a great favour to the public in general. For the past four years we have been in a country abounding with gold, silver, and other precious ores, but labouring under great disadvantages, owing chiefly from want of capital to develop them, and there being hitherto very little inducement for capitalists to visit our untold wealth, owing to the roughness of the country they have had to travel over; but with the Great Central Pacific Railroad entering the borders of our county, and in three weeks will pass through its richest portion, I may now say there is no better investment for English capital and opportunity for shareholders than that presented by the mines of Humboldt. I was employed eleven years in mining in England, and have had fourteen years' experience in different parts of the world. I prospected this county with Capt. Barrett, of Cornwall, who was sent out by English companies, but owing to the great quantity of snow and the hostile Indians we could not prospect to much advantage; since then we have partially civilised the Indians, and I have prospected the county thoroughly; and, from careful examinations, my candid opinion is that there are ledges enough to employ 10,000 miners, and if worked properly and advantageously would pay dividends in from six to twelve months after the work has commenced. Now, with the railroad in our midst, our mines can be worked more economically, button transported cheaper, and wages reduced, owing to living being 50 per cent. cheaper. There are a few New York companies working here, but as a general rule New Yorkers are ignorant of practical mining. They prefer a storekeeper or telegraph operator for superintendent before an honest, experienced miner, so their mines are worked by men who never saw a mine, and there can be little prospect of success. There are a few industrious Cornishmen here, men without capital, but with muscle, skill, energy, and practical knowledge, who are on the eve of great success. All we want is capital and experience; and I venture to say that before long Humboldt will be as rich a mining county as the world can produce.

Humboldt County, Nevada State, North America.

JOSEPH ORGAN.

FOREIGN MINING AND METALLURGY.

The coal extraction of the department of the Nord amounted in 1867 to 2,377,389 tons, as compared with 2,246,657 tons in 1866, giving an increase last year of 10,732 tons. This increase is less than that which took place in 1866 over 1865 (280,112 tons), but, at the same time, it is a continued progress, rendered all the more remarkable by the fact that neighbouring basins have not realised such an advance. Thus, the coal basin of the Pas-de-Calais, notwithstanding the skill with which mining operations in it are generally directed, only produced 1,609,664 tons in 1867, as compared with 1,638,574 tons in 1866, showing a falling off in 1867 of 28,910 tons. If, as regards the department of the Nord, we examine the extraction of each of the companies *per se* we find that in 1867 the Anzin Company increased its extraction to the extent of 155,237 tons as compared with 1866, or more than the increase in the production of the entire basin of the Nord last year. The number of men engaged in the mines of the Nord last year was—below ground, 12,859; and on the surface, 3036; making a total of 15,895. The report of M. Cacarier, the engineer-in-chief of the mines of the Loire, to the council-general of that department, indicates an increase of production in the sub-arrondissement of St. Etienne; 23 concessions in activity gave an excess in 1866 of 129,464 tons of coal of various quality. The working of coal in the sub-arrondissement of Rive-de-Gier is maintained at about 600,000 tons per annum. This result may be considered satisfactory, when we remember that the working of the Rive-de-Gier basin, dating back for more than a century, has exhausted the greater part of its beds. Active explorations have been made by various courageous and persevering companies in order to come to an extension of the great Rive-de-Gier bed; they will not be able to meet with it, except at a great depth. Orders for iron continue to arrive at the French works; several orders have, indeed, had to be refused, from the want of sufficient time in which to execute them. The general state of the French metallurgical markets may be said, then, to improve; at the same time, prices have only very slightly revived, although some special articles have been advanced 5 per cent. during the last fortnight. The foundries of the Champagne group have a good current of work, as well as the establishments which occupy themselves specially with railway plant. In the Moselle the state of affairs remains good, but there is no change to notice in the tone of prices. Refining pig does not give rise to many affairs; nevertheless, many producers have engagements for their current fabrication: prices remain at 2*t*. 8*s*. 1*d*. to 2*t*. 9*s*. 8*d*. per ton, but a slight improvement is looked for, and seems likely to be the consequence of the advance that has taken place of late in the iron of this group. The production of the forge of the department of the Seine-Inferieure was estimated last year at 880 tons; and the foundries, 29 in number, produced, in 1867, 8320 tons of castings. The other metallurgical works of the department deal with copper, zinc, and lead, and are of rather considerable importance. The production in 1867 of copper and brass, rolled and in tubes, amounted to 5230 tons; of rolled zinc, to 2650 tons; and of lead, rolled and in pipes, to 3635 tons. In the Haute-Vienne the second fusion foundries and the works for the construction of machinery were carried on, it is complained, with but little profit in 1867; but they, nevertheless, nearly all maintained their staffs last year without alteration.

The Belgian coal trade appears to be improving from day to day. The deliveries by water have regained a certain activity, which has enabled some impression to be made on the stocks of coal accumulated on almost all the pits' mouths. The extraction has increased, even in the basin of the Conchant de Mons, with the exception of some pits which still remain inactive; prices, nevertheless, do not exhibit any improvement. The Belgian General Railways Working Company has given some explanations in response to complaints made by coalowners of the Hainaut on the subject of the want of plants on the lines of that company. The General Working Company possesses, it appears, 4000 goods trucks, of which 1400 have been supplied to it during the past year or so. The Belgian State Railways system possesses 10,000 trucks, and its annual traffic is 6,700,000 tons, the *parcours* of which is relatively considerable, while the traffic of the Belgian Railways Working Company scarcely exceeds 2,600,000 tons annually, the average distance over which each ton is carried being sensibly less. The stock of plant of the Belgian Railways Working Company is, then, affirmed to be sufficient. There is no material change to report in the Belgian siderurgical markets; some orders for merchants' iron and plates continue to arrive at the works, but affairs have not yet regained that *flair* which distinguishes all complete and thorough revivals of activity, and great operations continue to make default. An order has been expected for some time, but has not yet been secured, for 85 locomotives and 2000 trucks, to be furnished to the Great Russian Railway Company, to meet the wants of the Nicholas (St. Petersburg and Moscow) line. The Great Russian Company has, it will be remembered, assumed the working of the Nicholas line, which belongs to the State, and which has hitherto been worked by the Russian Government itself. When the Great Russian Company proposed, it is stated, to treat with a Belgian contractor for the supply of this supplementary plant, which was imperatively required to enable the company to carry the great quantity of goods accumulated on the platforms of the Nicholas line, Mr. Wynans, an American, came forward and contended that he was holder of a contract concluded with the Russian Government, by the terms of which he had a monopoly of the supply of all the plant required for the working of the recently-transferred line. Pending the settlement of this dispute with Mr. Wynans, whose terms, as was to be expected, were much higher than those at which the plant could have been supplied in Belgium, the Great Russian Company has been obliged to withhold the order from general competition. At an adjudication of rails and cramps for the Belgian State Railways, the first lot, which comprised 3250 tons of Vignoles rails, with fish-plates and bolts, was let to the John Cockerill Company, at 5*t*. 1*s*. per ton. The second lot, 150 tons of cramps, was let to the house of Cambier, of Morlanwelz, at 5*t*. 2*s*. 3*d*. per ton. The John Cockerill Company has just brought into service a great Bessemer steel converter of 10 tons power; the new converter is capable of supplying 30 tons of steel per day, and works with the same facility as an old converter of 4 tons power. The Liege Royal Arms Manufactury is now delivering muskets made at Seraing of Bessemer steel of a quality specially adapted for arms, and produced under the name of "Cockerill Steel."

As regards miscellaneous matters, we may note that the French Transatlantic Steam Navigation Company has concluded a contract with the company owning the concern known as the Chantiers et Ateliers de l'Ocean for the construction of three steamers, intended to be placed on a new line to Valparaíso. The Charleroi Association of Forgemasters has addressed to the Chamber of Commerce of that arrondissement a long report on difficulties alleged to have been occasioned to metallurgical industry by a tariff introduced too frequently in the conventions regulating the relations of the different railways with each other. The revenue of the Parisian Company for Lighting and Heating by Gas declined in July to the extent of 9.76 per cent., as compared with July, 1867; for the first seven months of this

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year there was still, however, an advance of 0·31 per cent. A new general customs tariff for Russia, confirmed by the Emperor Alexander II., June 5, 1868, has just been published. It is provided that proprietors of workshops for the construction of machinery, working with the aid of steam or hydraulic motors, may introduce, duty free, with the authority of the Minister of Finance, cast and rough iron in sufficient quantities for the manufacture of steam-engines and other articles made in their works. The object of this arrangement, as will be readily perceived, is to encourage the progress of mechanical industry generally in Russia. A letter from Essen, Prussia, states:—"The general state of our siderurgical industry has not undergone any material change. The demand has remained tolerably active, and a regular current of orders arrives at the works. Almost all the establishments have secured orders which will keep the rolling-mills going satisfactorily for three or four months. It is to be hoped, then, that 1868 will prove a more favourable period for our forgemasters than last year. Prices have remained the same, but many indications justify the hope that the demand will increase, and that in consequence quotations will rise. But it must be admitted that the realisation of the hopes conceived by our forgemasters depends on the course of political events, and in this respect we are far from being assured or easy."

"*LA HOUILLE.*"—Under this title a new journal, devoted to the colliery interests of France, has recently made its appearance in Paris. Judging from the numbers which have already appeared, "*La Houille*" is entitled to take a prominent position amongst the mining and metallurgical journals of the country. Special attention is to be paid to the questions of freights and railway carriage, mines, railways, inland and ocean navigation, metallurgy, gas, and mineral products. Several able-written articles upon such subjects as the Coal Basins of France, by Mr. Deroux, mining engineer; the Coal Fields of the North of France, by Mr. A. Burat; and the Financial Position of France, have already appeared; and as soon as the numerous correspondents of the journal are in working order, "*La Houille*" will prove a really useful addition to the current French industrial literature. The management of the journal being in the hands of Mr. Theophile Pergeline, whose connection with the Blanzy Company should give him, moreover, great facilities for acquiring accurate information, may be taken as a guarantee that care and judgment will be exercised.

Meetings of Mining Companies.

GREAT WHEAL VOR UNITED MINING COMPANY.

The quarterly general meeting of shareholders will be held on Wednesday. The profit and loss account for the three months ending June shows:—

| | |
|---|------------|
| May 15.—Black tin sold, and carriage | £3314 7 10 |
| June 16. ditto ditto | 3273 4 7 |
| July 15. ditto ditto | 2912 4 8 |
| Aug. 28.—One year's rent of part of Trew teneement to | |
| Midsomer | 8 5 0 |
| Sundries sold, and cash balances | 1 15 2 |
| Total £9509 17 3 | |
| Tutwork and tribute cost (April, May, and June) | £5142 1 0 |
| Merchants' bills (April, May, and June), less discount, 504. 4s. | 1975 10 0 |
| Dues | 510 18 9 |
| Sundry payments, including London expenses | 295 4 1 |
| Total £1586 3 5 | |

Balance (profit)

The audited cash account showed a credit balance (including cash at bankers, petty cash, and bills receivable) of 29352. 3d. 3d. There were 90 fathoms 4 feet of ground driven and sunk during the three months.

LOVELL CONSOLS MINING COMPANY.

The ordinary general meeting of shareholders was held on Thursday, at the office of the company, No. 2, Bucklersbury, City, Mr. JAMES BATCHELOR in the chair.

The accounts to the end of July left a debit balance of 3342, 18s. 9d., including all the expenditure for the erection of new flat-rods and the sinking of the new shaft. The following report was then read:—

Sept. 16.—Since the last general meeting we have completed the sinking of the new flat-rod shaft, on the Combelleck lode, to the 12, and driven west on the course of the lode 7 fms., but it has been unproductive. We have also cleared up the bottom of the adit level, west of this shaft, for 7 fms. in length, and found that the former workers had taken tin away for about 3 fms. in depth. About the middle of these staves we discovered a strong masterly lode, 18 in. wide, and worth at least 20f. per fm., for tin. We are now busily engaged in driving the level to get under this rich lode, and I have no hesitation in saying that, in my opinion, we shall find it more valuable; the character of the lode can be seen from the specimens of ore sent to the office in London. The dip of tin is precisely the same as that of East Lovell, which joins on the east, but owing to the dip being westerly, we shall in all probability have to drive a little further than at present calculated, which we consider to be about 6 fms.; this will be driven with all speed, so as to enable us to take away the tin at a much less cost. Our engine, rods, pitwork, and surface buildings are all in good order. The future expenditure will be about the same as for the past six months. Looking at our improved prospects, I have every reason to believe that we shall now lay open a valuable deposit of tin at a small cost, and thus reward the shareholders for their patience and outlay.—WILLIAM CHAPPELL.

The CHAIRMAN said he thought that the shareholders must be highly gratified with the accounts and the report read. The mine was conducted in the most economical manner, and the best report they could have was in the specimens on the table. The secretaries, he was confident, would gladly afford any further information that might be desired by any of the shareholders.—Mr. F. MANSELL said he was well satisfied with the reports and the specimens, but he would be pleased to learn in what time the secretaries expected the 12 fm. level to be driven under the lode.—Mr. CHAPPELL stated that the level was being driven at the rate of 2½ fathoms monthly, and he thought that they would reach the rich tin ground in the 12 fm. level within eight weeks.

Mr. H. MANSELL, remarked that, in his opinion, they should be satisfied if the work were accomplished within a little longer time. Shareholders were occasionally disappointed when the slightest delay occurred beyond a fixed date; and if the lode were reached in the 12 fm. level within ten weeks they would have the utmost reason to be satisfied. Since the last meeting their prospects had greatly improved, and the mine should be regarded as remarkably prosperous.

Mr. BAILETT, in reply to a shareholder, said that the 12 fathoms level when reached would give them 8½ fathoms of the lode, which had been taken away for 3½ fathoms below the adit by former workers. One of the specimens on the table weighed 3 cwt., and was part of the lode, 18 in. wide, as they would see, composed of granite, with a large quantity of solid black tin disseminated throughout.

Mr. CHAPPELL stated that, for the further satisfaction of the shareholders, he had requested the favour of Captain John Nancarrow looking over the Lovell Consols, and obliging them with his opinion. Capt. Nancarrow was perfectly independent in the matter, and he had written to him in the most favourable manner of their property. Mr. Nancarrow wrote that the water being in he could not see the lode, "but saw the tin-stuff broken from it and drawn to the surface, and from this stuff, and the quantity of lode broken, and from the size of the lode, I should judge it to be worth not less than 30% per fathom. It greatly surpasses anything before seen in the mine, and looks like a first-rate discovery—for there are rocks of tin, as much as I can lift, of the same sort as those sent to your office to-day. All the force is now engaged in driving the 12 west." Mr. Chapman continued by saying that he had the utmost confidence in the estimate of Capt. Nancarrow, who had been a tin miner for 30 years, and who valued the lode at 30% per fathom, which Capt. Chappell, from a proper desire to keep on the safe side, had put down at only 20%, but from other information he believed that the lode was really worth 30%; and in a letter dated on Tuesday last Capt. Nancarrow further congratulated them on the discovery, and expressed his conviction that he had not over-rated its value.

Mr. F. MANSELL stated that he had seen specimens of tin from many districts, and they might examine specimens from 30 mines without meeting with anything so good as that on the table. Specimens are found in many mines with only a coating of tin resting on the surface of a very poor rock; but in these from Lovell Consols the tin was fairly and richly distributed throughout the entire width of the lode, leaving no doubt of its proving far more valuable at a greater depth. He had never seen in his experience anything more promising, and he was highly gratified at the progress made in the last six months, and begged to congratulate his fellow-shareholders on the important improvement that had taken place.—A SHAREHOLDER added that it was remarkable that in ground quite similar, he understood, to that of East Lovell a lode worth 30% per fathom should have been met at only 12 fathoms from the surface. He believed that tin of that value was seldom found at that low depth.

Mr. F. MANSELL begged to add further, and in explanation, that he was not acquainted with any tin of the same value at that depth, but the ground was altogether peculiar, and they had in the specimens on the table the tin from the point to which operations had been carried when the Phenacite miners were driven away by the water. The property was taken up by burrows, in which the old miners had wrought until they were expelled by the water.

Mr. BARTLETT said that there was a great advantage in their mine from the value reached in shallow workings for a lode worth 30% per fathom at their depth was probably equal to one of 40% to 50% per fm. at 100 fms. deep, from the economy in raising the mineral. They must also bear in mind the expectation, from the nature of the district, of reaching much more valuable ground as they wrought down. At one mine, Great Vor, near Bodmin, they obtained from their property, at perhaps, 150 fms. a lode of solid tin, worth 40% per fathom, was met with. Trampot Consols was now probably the richest tin mine in Cornwall, and that mine pays 14 per cent. on its existing market value, and has reserves worth 30,000; yet some time ago people talked of Trampot Consols as a mine that was to be shut up, while now the discoverer in the ground had placed it high in Cornwall mining. Its richest lode ran through the Lovell Consols sett, and is a very short distance from their own property.

The CHAIRMAN expressed his gratification at presiding at a meeting so harmonious and pleasant, and the result was, no doubt, promoted by the favourable report and the excellent arguments in the room on the table. He had also pleasure in stating that every account and liability of the company, to the close of July, was included in the accounts read to them, and he begged to move the following resolution:—"That the accounts now read be received and adopted, and, with the agent's report, be printed and circulated among the shareholders."

The resolution was seconded by Mr. RICHARDSON, and unanimously adopted. Mr. BECK said that he felt great pleasure in proposing a vote of 2s. per share, which would liquidate the balance against the company, and provide for future operations. The admirable prospects of the mine had been so clearly and fully stated, that for this resolution he had only to say if such satisfactory results could be achieved for calls amounting to only 4s. for the year, the shareholders could have no cause of complaint, as they would have a very cheap as well as a valuable property.—Mr. FERRIN seconded the resolution, which was also unanimously adopted.

Mr. MANSSELL moved a vote of thanks to the Chairman and to the Secretaries,

who had carried on the mine in the most satisfactory manner; they had taken great pains with their property, and, by advancing money to a considerable amount, had kept down the liabilities to merchants, enabling them to buy on better terms, while they had induced many of the proprietors to take shares in the mine, which, by the way, would turn out no small obligation to their friends. The resolution was seconded and unanimously adopted, and the Chairman and Secretaries returned thanks. The proceedings then terminated.

WHEAL TRELLAWNY MINING COMPANY.

The quarterly general meeting of shareholders was held at the offices, Bishopsgate-street, on Thursday,—Mr. W. NICHOLSON in the chair.

Mr. W. J. LAVINGTON (the secretary) read the notice convening the meeting, and the minutes of the last were approved. A statement of accounts for the three months ending July showed a debit balance of 1007, 2s. 1d. The reports of the agents were read, as follows:—

Sept. 15.—At our last setting we resumed the sinking of Trellawny's engine-shaft below the 226 fathom level, by a full pare of men, at 20f. per fathom, in which we have a good channel of ground, thus showing the ground is very easy for exploring, taking the depth into consideration; no doubt this will be hastened down quickly, to make a 230 fathom level. The lode in the 220 is over 6 ft. wide, chiefly capel and mundic, spotted with ore; the same being hard, we are driving by the side of it, for dispatch, and when thought advisable it will be cut through. The 210, south of shaft, is communicated to the winze sunk below the 196, and placed us in a position to set tribute ground. This end (210) looks very promising, and is extended 6 fathoms beyond the winze, and worth 5t. per fathom; we consider the chances in this direction are good for opening up a long piece of tribute ground. In the 210 north we have cut into the capels of the lode about 6 feet, containing a good deal of mundic, and, by all appearances, we shall soon reach the leading part of the lode, although this end is letting out water freely; it has not yet entirely drained the level above, but this we expect shortly. The winze sinking below the 196, and 8 fathoms in advance of this end (210) is down 5 fathoms; the lode, when last taken down, was worth 8t. per fathom. A stope in the bottom of this level, and 40 fathoms north of the winze, is worth 25t. per fathom. At Smith's engine-shaft, the 210 fm. level north is extended 44 fms. in the last end we have driven through in a silvery disordered piece of ground; and from what we can see of the lode the lode is much the same in appearance as before we opened out; for about 12 fathoms in length, ground that we are now working on tribute. The 210 is extended south of shaft, 34 fathoms, and in places driven through tribute ground. The lode in the present end is 3 ft. wide—saving work. We shall have to drive this end about the same distance, to intersect the main shaft; when this is accomplished we shall enter the run of ore ground driven through in the level above, and the man will show you this has been a continuous shoot of ore, dipping with the shaft from the upper levels. The 196, north of Chippendale's shaft, is driven 34 fms.; the lode for the last 10 fms. has considerably improved, from 3t. to 14t. per fathom. The present end is still worth 14t. per fathom. We are looking forward here for opening up a piece of good ore ground. We are very much pleased to see that Trellawny's engine-shaft is sinking in a beautiful stratum of ground, and will be quickly down to make a 230 fm. level, and we would again beg to bring before you the necessity of sinking Smith's engine-shaft, which will open out the north and south part of the mine at the same time, and thus enable us to lay open ground specially, and to a much greater advantage for the practical working of the mine and the benefit of the shareholders. We sold during the past quarter about 200 tons of silver-lead ores, realising 3471, 11s. 3d., and we have broken and in the way of dressing for the next sampling about 70 tons. We have employed, both underground and at surface, about 350 hands.—W. JOHNS, T. GRENFELL, J. PRYOR.

Sept. 16.—Since sending you our report for the meeting to-morrow, we have to-day cut into the leading part of the lode in the 210, north of Trellawny's shaft; we are glad to say, so far as cut into (1½ ft.), it is a good-looking lode, producing good work for lead, with a pretty deal of mundic, sealing, as well, the increase of water, no doubt shortly we shall drain the winze before us. We consider this to be very important, as we are now entering the ore ground driven over in the level above. You can understand this fully by looking at the plan.—W. JOHNS, JOHN PRYOR.

The CHAIRMAN moved that the reports be received and entered on the minutes, and that the accounts be passed and allowed. He thought shareholders could not fail to regard the reports as most satisfactory,

inasmuch as they proved that the general prospects of the mine had not only much improved, but that they were exceedingly encouraging as to the future. It was to be much regretted that the financial position of the company was not so satisfactory as could be desired; that had arisen from the fact that the returns during the past quarter had fallen short of the amount computed. At the last meeting the agent estimated that he would be able to return a similar amount of ore during the current as he had done during the past quarter, but the pitches having fallen off, he was disappointed in the returns. He might add that Mr. Peter Watson had recently returned from a visit to the mine, and would, no doubt, be glad to give the shareholders the benefit of his inspection.

Mr. PETER WATSON said he was certainly somewhat surprised to find that there was such a heavy debit balance against the mine, as, from the appearance of the different points of operation at the time of the last meeting, there seemed fair ground for hoping that, at least, no call would have been required upon the present occasion; but, as had been indicated by the Chairman, two or three pitches unexpectedly fell off, hence the difference in the returns and the increased debit. Capt. Johnnes had anticipated halting the winze that was going down under the 196 fm. level, by which he would have been enabled to get under the ore ground, and so increase the returns. By the letter just read it had been seen that the water had been drained to the 210, so that in a very short time they might reasonably look for increased returns from this point. As regards Trellawny's shaft, the recommendation of the committee was that the sinking of this shaft should be resumed, Mr. Trellawny having met the solicitation of the shareholders with reference to the dues. The suggestion of the committee now was that this shaft should be sunk with a full force of men. The truth was that the present position of the mine might be attributed entirely to the shafts not having been sunk since. He was sorry to say that the other lords had not met the shareholders in such a satisfactory manner, and it was for this reason that the committee did not recommend the sinking of Smith's shaft.

Mr. FITZGERALD said it appeared to him that the shareholders were working the mine at a loss for the benefit of the lords.

Mr. MILFORD said that Captain Johnnes had told him, while on a visit in Cornwall, that if these shafts were sunk Trellawny would be a better mine than it had ever yet been.

A SHAREHOLDER said it appeared to him that if the lords would show some interest to assist the shareholders in sinking the shafts—and when he said assist he meant nothing more than to remit the dues—they would be materially benefiting themselves, for there seemed to be no doubt that when the shafts were sunk the returns would be largely increased, and also the dues.

Mr. PETER WATSON said that the lords of mines throughout Cornwall must concede, or they would certainly find that the mining public would mine in other places than in Cornwall.—A SHAREHOLDER quite endorsed the recommendation of the committee, not to resume the sinking of Smith's shaft until the dues had been remitted.

A SHAREHOLDER said that Wheal Mary Ann was 40 fms. deeper than Trellawny, at which depth the mine was looking remarkably well, and yielding profits equal to 1000d. per quarter. Shareholders might rest perfectly satisfied that Trellawny would be of equal value to Mary Ann. He thought it but fair to bear his testimony to the efficiency and zeal of both Capts. Grenfell and Pryor.

The report was received, and ordered to be entered on the minutes, and the accounts were passed and allowed. A call of 11s. per share was made.

A vote of thanks to the Chairman was passed, which concluded the proceedings.

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

TAMAR VALLEY.—This mine is fast approaching a highly interesting stage, and there seems little doubt of the enterprising shareholders being repaid for their outlay at an early date. The new engine will command the operations on two well-known silver-lead lodes, already discovered and laid open—the famous South Tammar lode, and also the new or Tammar Valley lode.

BRYNPOSTIG LEAD.—This mine continues to look well, and is improving daily. The bottom end east still holds good. There will be sampled to-day 25 tons of lead, which is the produce of only three weeks.

At **GREAT SOUTH CHIVERTON** the lode in the 40 west still continues to improve, and will now yield 8 cwt. of lead per fathom, and the best part of the lode is in the bottom of the level, which looks well for the next level being productive. The 50 west and 40 east are also improving.

NEW CHIVERTON CONSOLS.—A large parcel of ore is waiting to be reduced. The lode in the end of the adit is improving. The purchase of the stamps has been completed. The last sale of ore, though imperfectly dressed, realised 16 per ton.

GLASGOW CARADON.—This mine is now rapidly opening up, as will be seen from the settings for September month.—Caunter Lode: To drive the 78 west; set at 8t. per fathom, worth 8t. per fathom. To sink the winze in the 65; set at 12t., worth 8t.; when holed, in two or three weeks, the ventilation of the mine will be complete, and the shaft, which is sunk to the 89, will be continued down, and the eastern level driven to prove a long run of ground. The winze in bottom of the 65 is set at 37. 5s., worth 10t. The stopes are set at 2t., worth 8t.—Arrlo's Lode: The 65 east is set at 40, worth 7t. The stopes in back of the 65, No. 1, set at 2t., worth 12t.; No. 2 set at 37. 5s., worth 6t.; No. 3 set at 37. 10s., worth 7t. The cross-cut south is set at 77. 5s.—Harvey's Lode: The 65 east is set at 27. 10s., worth 9t. Stopes No. 1 set at 37. 10s., worth 6t. No. 2 set at 37. 10s., worth 6t. No. 3 set at 37. 10s., worth 12t. No. 4 set at 37. 15s., worth 8t. No. 5 set at 37. 10s., worth 8t. No. 6 set at 37. 12s., worth 6t. No. 7 set at 37. 10s., worth 8t.

EAST WHEAL ROSE CONSOLS.—It is stated that a practical lead miner has inspected this mine on behalf of the directors, and that his report is most unsatisfactory. If this be the case, it is to be hoped that the directors will confer with the shareholders before any further expenditure is incurred.

MINING ON THE SOUTH OF HINGSTON, CALSTOCK, AND CALLINGTON.—Notwithstanding the depressed state of mining in general, the inhabitants of Calstock and Callington are somewhat cheered by the activity shown on the several young mines in this district. **WEST DRAKE WALLS**, the eastern of them, is in such a position as, we hope, soon to make important discoveries. The **PRINCE OF WALES**, westward of the last named, has been at work much longer time, but has now, despite the prophecies concerning it, given proof of being a standing profitable mine. The **WEST PRINCE OF WALES** will, without doubt, succeed in making returns, the lodes giving great promise of large deposits of ore.

FOREIGN MINES.

ST. JOHN DEL REY.—Morro Velho, August 17: Morro Velho produce for July, 923 ots., from 5048 tons of ore, yield 1,226 ots. per ton; Morro Velho cost for July, 6374/-; loss for July, 1808/-; Morro Velho produce for 11 days of August, 2147 ots., yield 1,228 ots. per ton; Gaia produce for July, 2080 ots., from 541 tons of ore, yield 2484 ots. per ton; Gaia cost for July, 4551/-; Gaia profit for July, 4381/-; Gaia produce for 11 days of August, 635 ots., yield 2,082 ots.

DOU PEDRO.—Mr. F. S. Symons reports: The produce for July amounts to 15,111 ots. (equal to 1743 ozs. troy) of gold, at 8s. 6d. per ozt., 6422/-; cost, 2104/-; profit, 4318/- Little box work has been taken out, but the general body of lode has yielded remarkably well, rarely better, and so long as this maintains so high a standard rich deposits may at any time be encountered.—First division of August: Extract of Mr. F. S. Symons's letter of Aug. 18:—Produce cleaned up to date amounts to 448 ots. The features continue good and promising, though no box work has been taken out since my last. The No. 5 lode, at horizon of 1100 ft. above Allee's, has proved to be of most satisfactory dimensions, being 50 ft. in width, and on an average 7 ft. in height, all more or less auriferous, and in some places rich—a most satisfactory feature, as this greatly our reserve of lode above water level.

ROSSA GRANDE.—Mr. Ernest Hilde reports:—The produce for July amounts to 1777 ots., 158 ozs. troy. The operations are proceeding with vigour, and the mine has improved greatly since my last. The lode in the shaft and level is looking well; it is from 4 to 6 ft. wide of solid ore, and to all appearances will continue so. The improvement in the auriferous quality of the stone is very encouraging. During the latter part of the month, from the 20th to the 31st inst., 72 tons of ore have been extracted from the above-mentioned points, and gave the very satisfactory result of 729 ots.; this exceeds 10 ots. per ton. The lode in the stopes of the old workings continues of a good size; the main portion of the 120 tons of ore which has been treated up to the 20th inst., has been derived from this place, and yielded 618 ots., equal to 54 ots. per ton. On the whole, therefore, the presentations are very promising.—First division of August: Extract from Mr. Ernest Hilde's letter, dated Aug. 16:—The operations are progressing well. The lode has undergone no change since my last; it still looks encouraging, both in the level and shaft. We have commenced opening slopes below and above the level east from shaft, and find a good sized lode at both places, particularly above the level; its size in some places is from 7 to 8 feet wide. Judging from the appearance of the skins in the stamps, the stone seems to continue equally as rich as it was the latter part of previous month.

ANGLO-BRAZILIAN.—Mr. F. S. Symons reports:—The gold return for July amounts to 348 ots. (equal to 397 ozs. troy). Produce and Cost: Produce, 348 ots., at 9s. 15s. 6d.; cost, 1447/-; profit, 191/- General Remarks: The operations generally have proceeded uninterruptedly; good duty has been performed, and though the produce does not come up to our expectations, it exceeds that for last month, and enables us to show a profit of upwards of 100%. The works in the mine have been prosecuted vigorously, and the features of the lodes generally—Dawson's Canon excepted—are encouraging. The arrastre for reducing sand escaping from the stamps to a greater degree of fineness was completed on the 15th, and is working admirably. From the produce extracted it is evident the second treatment of the sand is remunerative, and another arrastre will be erected forthwith. First Division of August: Extract from Mr. F. S. Symons's letter, dated Aug. 18: Since my last little or no change has taken place in the appearance of the lodes generally.

CHONTALES GOLD AND SILVER.—Consuelo Mine: No. 3 level, driving east from No. 2 shaft, on the course of the lode, has been driven 2 varas; the lode is 3 ft. wide, yielding 1 oz. of solid ore, and to all appearances will continue so. The improvement in the auriferous quality of the stone is very encouraging. During the latter part of the month, from the 20th to the 31st inst., 72 tons of ore have been extracted from the above-mentioned points, and gave the very satisfactory result of 729 ots.; this exceeds 10 ots. per ton. The lode in the stopes of the old workings continues of a good size; the main portion of the 120 tons of ore which has been treated up to the 20th inst., has been derived from this place, and yielded 618 ots., equal to 54 ots. per ton. On the whole, therefore, the presentations are very promising.—First division of August: Extract from Mr. Ernest Hilde's letter, dated Aug. 16:—The operations are progressing well. The lode has undergone no change since my last; it still looks encouraging, both in the level and shaft. We have commenced opening slopes below and above the level east from shaft, and find a good sized lode at both places, particularly above the level; its size in some places is from 7 to 8 feet wide. Judging from the appearance of the skins in the stamps, the stone seems to continue equally as rich as it was the latter part of previous month.

San Domingo and San Antonio Mines: W. Evans: Stopping in back of No. 2 level, west of Palma's shaft, 24 varas; the lode is 3 ft. wide, yielding 8 dwts. of gold per ton. Stopping in back of No. 2 level, east of Palma's shaft, 17 varas; the lode is 4 ft. wide, yielding 10 dwts. of gold per ton. Stopping in back of No. 3 level, west of Palma's shaft, 31/2 varas; lode 3 ft. wide, yielding 10 dwts. of gold per ton. Driving on course of San Antonio lode, west of Trinidad Creek, 12 varas; lode 31/2 ft. wide, yielding 5 dwts. of gold per ton; this lode is somewhat disordered, and appears to be dividing itself, forming a small horse, but from all appearance will soon come together again, and no doubt will prove more valuable. In consequence of the heavy rains during the month our tramway has required several repairs, Consuelo in particular, and a great deal of timber has given way in San Antonio Mine. A force of men is excavating for the foundation of new stamps, which will be excavated about the end of August, and ready for carpenters fixing their timber, of which several logs are already on the spot.

Stamping and Grinding: During the month the stamps have been working on Consuelo ore solely, but in consequence of the damage to the tramway they have not been regularly supplied with ore, and from which cause the stamps could only work 18 days. The quantity of ore crushed during that time was 759 tons, producing 396 ozs. of gold. Six cups are being laid, and are preparing with dragstones, to be put to work as soon as sufficient quartz can be supplied. Mr. Bolt adds: "I have already made great progress in preparing for 12 additional stamps at St. Domingo, and I think I may promise, notwithstanding the bad roads, to have them at work within two months after their arrival at San Baldo. I have got most of the timber required for them in, and have 12 men at work at the excavation for them. I shall only now state that what I have to lay before you will prove that all my statements with regard to large profits, as soon as sufficient stamps are erected, have been grounded on a solid basis. I have not time to go into all particulars about the mines, but everything is looking most flourishing." Advice has been received from the company's agent at Greytown that the first portion of the stamps had been dispatched up the river.

IMPERIAL SILVER QUARRIES.—Lewis Chalmers, Aug. 17: During last week 12 ft. of tunnel were completed.

RHENISH CONSOLS.—G. Sweet, Sept. 16: Christiana: The drivages east and west in the 20 lachter level are without any noticeable alteration since last reported on. The drive west, in the 10 lachter level, will afford 18 centners of lead ore per lachter. No alteration in the adit drive west. The different stopes are the same as last reported. The sinking of the engine-shaft is now being proceeded with.—Bliebach: The drive west of the middle lode, in the adit level, is continuing to yield 1 ton of lead ore per lachter. A stope on this lode, in the roof of the 10 lachter level, will afford 25 centners of lead ore per lachter. The different tribute bargains are without change. In the cross-cut driving south in the 10 lachter level we have intersected a small branch of lead ore, and have commenced opening upon it; in my next report I hope to be able to report more fully on this point.—Madonna: The trial shaft in this mine is now about 4 lachters deep, and at the depth of 5 lachters we intend to cross-cut in the direction where we expect to find the lode.

RAILWAY COMMUNICATION BETWEEN PASSENGERS AND GUARDS.—In July an Act of Parliament was passed declaring that "after the 1st day of April, 1869, every railway company shall provide and maintain in good working order, in every train worked by it which carries passengers and travels more than 20 miles without stopping, such efficient means of communication between the passengers and the servants of the company in charge of the train as the Board of Trade may approve. If any company makes default in complying with this section, it shall be liable to a penalty not exceeding 10/- for each case of default. Any passenger who makes use of the said means of communication without reasonable and sufficient cause shall be liable for each offence to a penalty not exceeding 5/-." To comply with this wise requirement a committee, representing the chief railway companies, has been setting for some time at the Railway Clearing House, London, to consider and decide upon the best mode of effecting a means of communication between passengers, guards, and drivers while trains are in motion.

Among the numerous plans submitted is one patented by Messrs. KEARSLEY and HOLT of Manchester, which promises to comply with the requirements of the Act of Parliament. It is on trial by the London and North-Western Railway Company on one of their carriages in London, and is also in successful operation on one of the carriages of the Manchester, Altringham, and South Junction Railway. It was tested on the latter line on Friday, between Manchester and Knutsford, in the presence of Mr. Kirkman, the manager, and a number of persons interested in railway improvements. The result of the experiments, especially in the dark during the return journey, was quite satisfactory. At any moment the passengers could, and often did, pull down the small chain suspended over the head in the carriage, and immediately hoist the semaphore from a vertical to a horizontal (or danger) position, thus causing it to show a red light, and at the same time to set in motion the tongue of the alarm bell by the rapid revolutions of the wind vane, with its oscillating crank and lever; thus producing such a violent ringing that not only drivers and guards, but all the passengers in the train of eight carriages, distinctly heard the sound of alarm. The following description may enable our readers to form an idea of the nature of this valuable invention:—

The signal is placed upon the roof of each carriage. It consists of a circular iron frame or stand, containing a revolving wind vane, 12 in. diameter, which is set in motion by the air current caused by the speed of the train. To this stand a 12-in. brass bell is fixed; also a lamp showing a white light. A double semaphore, 15 in. diameter by 6 in. wide, is also attached, which, when in a vertical position, encloses the wind vane, thus keeping it at rest while the train is in motion. A light chain is connected to the semaphore, and passes along the carriage roof from end to end, and into each compartment overhead, from door to door, being in such a convenient position that it may be used by any passenger, even in the dark, without leaving his seat. Should any passenger, owing to imminent peril, deem an alarm imperative, he has simply to pull the small chain overhead, when instantly the semaphore rises to a horizontal position, changing the white into a red light, and by uncovering the wind vane sets it revolving by the current of air, and rings the alarm bell incessantly until the train is stopped. That no one may tamper with the signal, after an alarm has been given, a strong spring holds the semaphore up, which can only be released

by an officer of the company when the train stops. A white ball falls from the roof with the chain, a few inches, in the compartment from which the alarm guard to the carriage, while the ball that has fallen from the roof points out the compartment whence the signal proceeds. The bell, lamp, wind vane, and semaphore, being all attached to one stand, render the signal exceedingly simple, portable, and easily fixed upon or removed from a carriage.

The patentees claim the following advantages for their invention:—1. Each carriage, acting independently, requires neither cords, chains, wires, tubes, rods, nor any other mechanical contrivance to connect the train from end to end.—2. No attention is required from the companies' servants at the various stations as to coupling and connecting when vehicles are added to or taken from trains in transit.—3. The semaphores, lights, revolving wind vane, and bells, acting both ways, require no special attention in the composition of a train, but are right for action notwithstanding the carriage may be reversed.—4. All the signals employed—semaphores, lamps, and bells, being well understood by the companies' servants, render working instructions unnecessary, and mistakes impossible.—5. The mode of working the signals, being similar to the working of railway signals in general, is a sufficient guarantee that they may, in all states of the weather, be safely depended upon for certainty of action when required.—6. No daily attention is required to keep the signal in good working order, and when the carriage is worn out the signal may be taken off and applied to a new carriage, being little the worse for wear.

EXPORTS OF RAILWAY IRON.—The exports of railway iron from the United Kingdom amounted in July to 37,516 tons, as compared with 66,101 tons in July, 1867, and 53,256 tons in July, 1866. The falling off observable in the exports in July was attributable to the diminished demand for British India. As regards the exports for the seven months ending July 31 this year, the total amounted to 334,058 tons, as compared with 318,028 tons in the first seven months of 1867, and 312,732 tons in the first seven months of 1866. The exports to Russia to July 31 this year declined to 28,100 tons, as compared with 48,432 tons in the corresponding period of 1867, and 38,261 tons in the corresponding period of 1866. To the United States, however, the shipments made amounted to 165,180 tons, as compared with 112,661 tons and 60,979 tons respectively. British India absorbed 51,026 tons in the first seven months of this year, as compared with 83,473 tons and 78,381 tons respectively. The value of the railway iron exported in July was 300,344/-, as compared with 566,099/- in July, 1867, and 420,130/- in July, 1866; and for the seven months ending July 31 this year 2,614,606/-, as compared with 2,662,380/- and 2,539,483/- respectively in the corresponding periods of 1867 and 1866.

THE SOUTH STAFFORDSHIRE COAL FIELD.—No. II.

This coal field, measured on Mr. JUKES's map, is 21 miles in length, and from east to west an average breadth of 51/2 miles. Commencing on the north, at Brereton, the boundary line passes by Cannock, Wolverhampton, King's Swinford, Stourbridge, and Pedmore, eastward to Frankley, thence northward by Oldbury, West Bromwich, Aldridge, Brownhills, and Castle Hill to Brereton. Castle Hill is 900 ft. above the sea. The coal field is surrounded on all sides by the New Red Sandstone, or the Lower New Red Permian, mostly by the latter, except at Walsall, where the Upper Silurian measures are thrust up to the surface in an irregular patch of 31/2 miles by 11/2 miles, forming its eastern boundary in that distance. From Dudley to Parkfield the Silurian measures are also thrust up, forming an elevated ridge, and the eminences called Dudley Castle Hill, Wren's Nest Hill, and Sedgley Beacon; the latter 760 ft. above the sea. It is remarkable the absence of the Millstone grit, the carboniferous limestone, and the Old Red Sandstone; the South Staffordshire coal measures rest upon the Silurian beds. On the west side of this coal field Mr. JUKES's geological sections show the coal measures abutting against the Permian rocks at what is called the west boundary fault downthrow. No explorations have thrown any light on what exists below these Permian rocks; there is a probability that the coal measures may lie there, and the idea is entertained by some geologists that a continuous coal field may exist between South Staffordshire and Shropshire; in the latter the coal measures are from 1000 to 1100 ft. thick, agreeing with the depth in the southern portion of the South Staffordshire field. On the east side of the coal field the prospect is less hopeful; guided by Lord DARTMOUTH's sinking at the Heath Pits, West Bromwich, we arrive at the conclusion that coal is absent in that locality. The following section is given:—

| | |
|--------------------------------------|----------------|
| 1. Permian red rock series | Yards 268 0 0 |
| 2. Grey clunch, with streaks of coal | Yards 0 2 0 |
| 3. ditto with batte | 1 1 6 |
| 4. ditto | 6 0 6 |
| 5. ditto | 1 0 9 |
| 6. ditto | 7 0 0 |
| 7. ditto | 1 1 6 |
| 8. ditto | 2 2 6 |
| 9. COAL | 0 0 6 |
| 10. ditto | 0 2 0 |
| 11. ditto | 0 2 6 |
| 12. COAL (lower part of Thick coal) | 0 0 0 |
| 13. ditto | 0 2 0 |
| 14. ditto | 3 2 0 |
| 15. ditto | 0 2 0 |
| 16. ditto | 1 1 0 |
| 17. ditto | 1 1 0 |
| 18. ditto | 4 2 0 - 39 2 9 |

Total depth of Heath Pits Yards 307 2 9

From this pit headings were driven in the 9 ft. of coal to the east, about 35 yards; a pit sunk at the end of this, 27 yards, through fire-clay and sandstone; a boring was made below that, 60 yards, through "Bavin measures" (Silurian shale), so strong at the bottom that the boring was given up, and was supposed to be the limestone. Another bore-hole was put down to the north-east, with the same result. It would appear from these explorations that the coal measures are nearly nipped out on the east side, and the Permian and Silurian measures will ultimately come together. It should be observed that the working of coal was continued in the Heath Pits, in the 9-ft. seam, to the west. Other explorations have been made through the Permian strata. Two pits were sunk by Messrs. DAVIS, at Bullock's Farm, near Spon-lane, through sandstone and marls of the Permian measures, 262 yards 2 feet, seam of coal 10 inches thick, 71 yards down, fire-clay below; this occurring in the Permian is unusual. Lord DARTMOUTH's pits, at Heath, had no coal or fire-clay in the Permian. At Lyng Colliery there was 183 yards 1 foot of red rocks, or Permian; at Lewisham pits 105 yards; and at the Terrace pits, close to the fault, 43 yards of Permian strata. On the southern edge of the coal field trial sinkings have been made. Mr. H. JOHNSON furnishes the following:—At Wassel-grove, near Hagley, a trial shaft has been sunk 262 yards, through the coal measures, and into the Silurian strata, at a cost of 12,000/-; no coal or ironstone of any value was met with. At the Manor Farm, near Hales Owen, a sinking has been made to the depth of 428 yards, at a cost of 13,000/-; a seam of coal, from 3 to 4 feet thick, was found, 310 yards down; headings were driven 300 or 400 yards in this, north and south, without any increased thickness of coal, and the trials are now stopped. This was done at a cost of 13,000/-, by Mr. J. S. DAWES, on the property of Lord LYTTELTON.

There has been a discovery of coal at Madeley, in Shropshire, under the Permian. In South Staffordshire the Permian rocks are stated to be 500 yards thick; if this be correct, a sinking through them to the top of the coal measures, or whatever is next in order, would be a long and hazardous speculation; a boring would answer the purpose of proving the coal measures, at less cost. As this district is becoming exhausted in its supply of fuel and ore for iron making to a great extent, it is a subject of grave consideration how far money should be expended in trials on the western side of the coal field, as this would prove the thickness of the Permian strata, also the existence or not of the coal measures beneath. The existence of coal and ironstone at moderate depths would give fresh impulse to the district, and uphold its former prosperity.

The South Staffordshire coal measures are stated to be 1000 feet thick. The North Staffordshire ditto ditto ditto 5000 ditto. The Shropshire ditto ditto ditto 1000 to 1,100 feet thick. The South Wales ditto ditto ditto 7000 to 12,000 feet thick. Over the greater part of the south side of the coal field the thick, or 10-yard, seam is found, in the districts of Bilston, Wednesbury, Oldbury, Halesowen, Brierley Hill, and King's Swinford; in the south-east corner, south of Rowley Regis, its quality is rather impaired, being much more mixed with cakes of sandstone, and interleaved with thin layers of it, making the coal commercially inferior, and difficult to keep clean. The thick coal under part of the Permian at West Bromwich is said to be 28 feet thick, with thin layers, or partings, in it. Beyond the area named the thick coal is supposed to divide

into several seams of workable coal to the northward, in a distance of about 5 miles, and from being 10 yards thick is gradually separated, until it is distributed amongst 300 ft. of shales and sandstone. These coals have been classified as follows in the respective districts:

SEAMS OF COAL FOUND SOUTH OF BILSTON.

SEAMS OF COAL FOUND AT ESSINGTON.

Upper sulphur coal, 1 foot, 100 yards above thick coal.

2 ft. coal. Brooch coal, 3 ft. Essington third and fourth coals.

ditto fifth coal.

ditto sixth coal.

Wyrley Old Robin's coal.

ditto yard coal.

ditto Charles coal.

ditto Cannel coal.

ditto Brooch coal.

ditto Benches coal.

ditto 8 ft. or bottom coal, or Bentley Old Man's coal.

Bentley Hey coal.

Heathen coal.

Sulphur coal.

New Mine coal,

PARIS EXHIBITION, 1867, GOLD MEDAL.

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MESSRS. WATSON BROTHERS return their most sincere thanks for the great patronage bestowed and confidence reposed in their firm for 25 years, and to assure their friends and clients it will be their earnest endeavour to merit a continuance of both.

Messrs. WATSON BROTHERS have made arrangements for continuing their weekly Circular, which had a large circulation for many years, to the columns of the *Mining Journal*, their special reports and remarks upon mines and mining, and state of the share market, will in future appear in this column, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. J. A. Watson, F.G.S., author of "Gleanings among Mines and Miners," "Report on Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with statistics of the Mining Interest, annually for 21 years, &c. &c. In the Compendium, published in 1843, Mr. Watson was the first to recommend the system of a "division of small risks in several mines, ensuring success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mine and share dealing than there is at present; and, from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services to all connected with mine or the market, as they have for so many years done privately, through the medium of their own Circular.

Messrs. WATSON BROTHERS transact business in the purchase and sale of mining shares, and other securities; payments of calls, receipt and transmission of dividends, obtaining information for clients, and affording advice, to the best of their knowledge and judgment, based on the experience of more than 30 years' active connection with the Mining Market.

Messrs. WATSON BROTHERS also inform their clients and the public that they transact business in the public funds, railway stocks, insurance, and every other description of shares dealt in on the Stock Exchange.

Messrs. WATSON BROTHERS are also daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

Messrs. WATSON BROTHERS having agents and correspondents in all the mining districts, and an extensive connection among the largest holders of mining property, have the more confidence in tendering their advice on all matters relating to the state and prospects of mine and mining companies, and are able to supply shares in all the best mines at close market prices, free of all charge for the service.

MONDAY.—Good demand to-day for East Grenville, at 2½ to 3. Grenville, 27s. to 29s.; Prince of Wales, 36s. to 38s.; Great Retallack, 3½ to 3½; West Chiverton, 60½ to 61½; East Caradon, 3 to 3½; and Great Laxey, 18 to 19. Don Pedro is flatter, at 3 to 3½; Yudanamutana, 2½ to 3½; West Seton, 150 to 160.

TUESDAY.—Market rather dull. East Grenville, Grenville, Chiverton Moor, and Great Vor Flatter. East Grenville, 2½ to 3; Grenville, 26s. to 28s.; Chiverton Moor, 6½ to 6¾; Great Vor, 12 to 13; Prince of Wales, 36s. to 38s.; West Chiverton, 60½ to 61½; Don Pedro, 3 to 3½; Yudanamutana, 2½ to 3½.

WEDNESDAY.—Settling-day. Active demand for Prince of Wales, East Grenville, West Chiverton, Great Laxey, Marke Valley, and Yudanamutana. Prince of Wales, 38s. to 40s.; East Grenville, 2½ to 3½; West Chiverton, 60 to 62½; Great Laxey, 18 to 19; Marke Valley, 7½ to 7½; Chontales, 2½ to 2½; Yudanamutana, 2½ to 3; Don Pedro, 3 to 3½; Chontales, 2½ to 2½; Mary Ann, 17 to 18.

THURSDAY.—Good demand to-day for East Grenville, at 2½ to 2¾; Prince of Wales, 38s. to 40s.; West Chiverton, 60½ to 61½; Great Laxey, 18½ to 19; Marke Valley, 7½ to 7½; Yudanamutana, 2½ to 3; West Drake Walls, 5s. to 7s. 6d.; Great Retallack, 3½ to 3½; Chontales, 2½ to 2½; Mary Ann, 17 to 18.

FRIDAY.—Market not quite so active. Prince of Wales, 37s. to 39s.; East Grenville, 2½ to 3½; Chiverton Moor, 6½ to 6¾; West Seton, 150½ to 151½; Chontales, 2½ to 3½; Wheal Grenville, 24s. to 26s.

ACCOUNTS AND AUDITS.—Some valuable and interesting remarks on the new "Regulation of Railways Act," by Mr. H. LLOYD MORGAN, public accountant, have just been issued, in pamphlet form, by Mr. Effingham Wilson, of the Royal Exchange. Mr. Morgan's object is to show the additional security which railway shareholders will possess after Jan. 1 next, when the uniform system of accounts, now rendered compulsory by Act of Parliament, comes into operation. He points out that no railway balance-sheet can be issued after that date without being made up according to the forms of the first schedule of the new Act, under a penalty of 5s. per day, until a correct balance-sheet will next year be extended to banks, insurance, canal, dock, water, gas, and other joint-stock companies—each class of companies framing that particular form of balance-sheet which is most applicable to the proper conduct of their several undertakings. The pamphlet gives abundant evidence that the author has well considered his subject, and a vast amount of useful information can be obtained from its perusal.

CURRENCY REFORM.—An interesting little pamphlet upon this important subject has just been issued by Mr. N. A. NICHOLSON, M.A., of Trinity College, Oxford (through Messrs. Trübner and Co., of Paternoster-row), entitled "Observations on Coinage and our Present Monetary System," in which the coinages of England and France are carefully described and compared. Mr. Nicholson urges that there ought to be one standard of value in any one country, and but one; either one or other of the two metals should be selected as the standard, and coins of the standard metal should circulate at their intrinsic value, as so many stamped ingots of standard metal. The book is well worthy of thoughtful and attentive perusal.

THE LONDON BANKS AND FINANCE COMPANIES.—The September edition of this very useful little directory has just been issued by Mr. E. Utley, of Threadneedle-street, and appears to have been corrected with the utmost care. The information given with regard to joint-stock banks and similar companies embraces all that is likely to be required by the man of business; it gives the names of the directors and managers, address of chief offices and branches, date of establishment, submitted and paid-up capital and reserve fund, number and amount of shares, and number of shareholders, as well as the particulars of dividends, date of meetings, form and cost of transfer, &c. &c. In addition to this there are lists of the London private-banks, with the names of the partners, of the discount brokers, financial agents, &c., and alphabetical lists, which serve as indexes to the other portions of the book. As abstracts of the latest reports of the banks, credit, finance, and discount companies are given, the book will be well worth preserving as a work of reference, whilst for present use it is certainly invaluable.

"FARMERS' ALMANACK."—The eleventh annual edition, that for 1869, of "Thorley's Illustrated Farmers' Almanack," has just made its appearance, and is fully equal in interest and utility to any that has preceded it. As usual, a vast number of amusing little sketches have been brought together, and from these a considerable amount of really valuable facts may be learned even by those who are not altogether unacquainted with the advantages derivable from the use of Thorley's Food for Cattle.

LONDON GENERAL OMNIBUS COMPANY.—The traffic receipts for the week ending Sept. 13 amounted to 10,969l. 7s. 8d.

HOLLOWAY'S PILLS.—Though these priceless treasures have many competitors for fame they have no equals for supplying the young and delicate with a simple, safe, strengthening and purifying aperient. Holloway's medicine is composed of the purest balsams, untainted by a trace of any element which could by possibility be obnoxious to the most tender organizations. This commanding quality makes these pills most admirably adapted to all the complaints peculiar to females at any age, and under all circumstances. Holloway's preparation cleanses both the solids and fluids which form the human body, and removes from every organ the very essence of disease, which consists in the circulation of foul, or the excess or paucity of pure, blood to the various corporeal structures.

THE MINING JOURNAL.

winze sinking below the 174 yard level, east of Eaton's shaft, on Pant-y-Go vein, is 2 ft. wide, and worth 1 ton of lead ore per fm.; we have nine men at work here, making good progress in sinking. In the 204 yard level, east of Eaton's shaft, on Pant-y-Go vein, the lode is 18 in. wide, producing good stones of lead ore. The 174 yard level west of Pant-y-Go shaft, on Pant-y-Go vein, continues without much change to notice; the lode is 3 ft. wide, producing occasional stones of lead ore, but not of value. There is no change to notice in Trustees' shaft; the men are making good progress. The old tribute pitch throughout the mines continue to yield about their usual quantity of ore. We have about 12 tons of cleats and timber.

EAST CHIVERTON.—J. Gross, R. Southey, Sept. 17: The sinking of Bartlett's shaft is being proceeded with as fast as possible, now down better than 8 fathoms below the 25; the ground, although hard, is very congenial for the production of silver-lead ores, and we have every reason to believe that the lode when intersected at the 40 will meet our expectations. Since July we have sunk the boundary shaft 12 fathoms, and driven the 25 fm. level end west under the same, and are daily expecting to communicate, which will thoroughly ventilate the mine, where we are certain of intersecting one or two lodes, proved at surface to traverse this part of the property, and from which we look for good results.

EAST GUNNISLAKE AND SOUTH BEDFORD CONSOLS.—J. Bray, Sept. 17: There is no change in the 36 fm. level cross-cut south. The lode in the shallow adit is 3 ft. wide, composed of spar, munde, and peach, with stones of ore. The lode in the Impham adit is 4½ ft. wide, producing 3 tons of ore per fathom; this end is driven 2½ feet beyond the boundary. We are taking out the wheel to traverse this part of the property, and from which we look for good results.

EAST POOL.—W. S. Garby, John Maynard, John Hosking, Sept. 14: Great Lode: The 170 is driven east of the cross-cut 32 fms., and is worth for the 12, per fathom. The 170 is driven west of the cross-cut 36 fms., and is worth for the 15. The 181, per fm.—Engine Lode: Two stope in the back of the 170 are worth 20f. per fathom each.—South Lode: The 130 is driven east of the cross-course 18 fms., and is worth for tin and copper 12f. per fm. The rise in the back of the 130, on the cross-course, is up 22 fms., with stones of copper and tin ore in it. The stope in the bottom of this level is worth for copper ore 30f. per fm. The winze below this level is down 8 fms., and is worth for copper ore 20f. per fm. The 100, west of cross-course, is worth for copper ore 5f. per fm.

EAST ROSEWARNE.—C. Glasson, Sept. 17: In the 115 fathom level, west of King's shaft, the lode is 10 in. wide, worth 6f. per fm. In the 115 fm. level, east of shaft, the lode is 12 in. wide, worth 4f. per fm. In the rise in the back of the 105 fathom level, west of shaft, the lode is 6 in. wide, producing good stones of copper ore. In the 95 fm. level, west of shaft, the lode is 15 in. wide, worth 8f. per fathom. In the 95 fm. level, east of shaft, the lode is 12 in. wide, producing stones of ore, but not enough to value. The stope in the back of this level have improved since my last report, now worth 10f. per fathom.

EAST SETON.—Joseph Vivian and Son, William Thomas, Jun., Sept. 17: At Bassett's shaft we continue our cross-cuts both north and south in the 20, and expect to reach a lode or two within a short period. The sinking of Cartwright's shaft progresses in accordance with our expectations, and is perfectly dry.

EAST SNAFFELL.—W. H. Rose, Sept. 16: We shall be taking down the lode at the engine-shaft by the end of the week, when I will send you a report both of it and the 20 north. I have arranged to ship our ore from the Laxey parcel.

EAST WHEAL GRENVILLE.—G. R. Odgers, Wm. Bennetts, Sept. 16: The lode in the tribute pitch in back of the 110 west has improved, and will now produce 3 tons of rich ore per fathom. At the 110 east, on the caunter lode, we have not yet intersected the lode to the east of the cross-course, but are expecting to do so daily. The lode in the rise above this place is worth 1½ ton of copper ore per fathom. The lode in the winze sinking below the 95 is worth more than 2 tons of ore per fathom. In the rise above the 95 the lode will yield in the western end 1½ ton of copper ore to the fathom. In the winze sinking below the 75 the lode is worth for the length of the winze from 6 to 7 tons of ore per fathom; the ore is of excellent quality. The 65 fm. level cross-cut, from the caunter, is extended 5 fms.; the 55, 7 fms.; and the 45, 4 fms., the ground being improved since the same that we had in the 75 fm. level.

EAST WHEAL RUSSELL.—William Richards, Sept. 17: There is no material change in the operations of the mine since the date of my last report. The tributaries are working with spirit, and we shall prepare to sample their ore at the end of this or the beginning of next month.

GARSTON COPPER.—G. Rose, G. Rowe, Jun., Sept. 12: The ground in King's engine-shaft, sinking below the 70, is improving, and our progress very satisfactory. The south cross-cut going through the lode, at the 70 west, is producing very strong munde, with occasional stones of ore. The lode in the 70 east is looking very healthy, worth stones of ore per fathom, but the ground is hard to dig, and our progress rather slow. The lode in the rise in back of this level is principally composed of capel and spar, with a little ore. The lode in the stope east of said rise is yielding 3 tons of ore per fathom. The lode in the 60 east is without change. The winze and stope going down below the 60 are worth from 3 to 4 tons of ore per fathom. Ennor's pitch, in back of the 50, is worth 2 tons of ore per fathom. All other points in operation are without change.

GONAMENA.—Richard Pascoe, Sept. 15: The 138 west, on Venning's lode, is worth 2 tons of ore per fathom. We have commenced to sink a winze below the 126 on this lode, where it is worth fully 4 tons of ore per fathom. We are pushing on this place as fast as possible to communicate with the 138. Nothing new in any other part of the mine.

GREAT LAXEY.—J. Barkell, Sept. 16: We have completed the alterations in our main-rods and pitwork down to the 130 fm. level, and so far all is strong and secure. We have connected the rods at the above-named level, and our intention is to fork the water to the 220, so as to enable us to resume the driving of the 210, 200, and 190 fm. levels north, and then to proceed with the further alterations still necessary to be made in the rods and pitwork. The 20 fathom end, which is now full of water, is worth 70f. per fathom; and the 210 fm. level is up to within a few fathoms of this rich ore ground. We are still shooting off the side of the 190 fm. level, where the lode has increased from 12 feet to 14 ft. in width, and is worth about 120f. per fathom. The 180 is also increasing in value as we go north, the end at present being worth about 55f. per fm. The 165 is worth 70f. per fathom, and there is a part of the lode still standing to the east side of the level, which is being shot off, and which is likely to increase the value of the end to 80f. or 90f. per fathom. The 155 fm. level end, driving north, is not looking so well; but we are not out of the influence of the small slide recently intersected; end worth 70f. per fathom. The stope in the roof of the 165 (about 3 fms. in advance of the 155 fm. level end) are worth 120f. per fathom. In the 145 the ground is hard and slow for progress, consequently there is but little chance to notice; the lode in the end is worth about 50f. per fathom.—Dumbell's: The engine-shaft is now down about 14 fms. 3 ft. below the 125 fm. level, and we intend to sink it about 3 ft. deeper before we commence to drive. Tossink this 3 ft., and bring down the main-rods and change the pitwork, will occupy us the whole of this month and the greater part of next. When the work is completed we shall drive both north and south, in a lode worth about 50f. per fathom. The sump sinking below the 125 is worth 100f. per fathom, and there is still a part of the lode standing, the value of which we do not know; the sump is about 20 fms. north from shaft. The 125 fm. level end, driving north, is worth from 80f. to 90f. per fathom; and we have a sump coming down from the 110, about 20 fms. in advance of the 125 fm. level end, worth over 100f. per fathom, thus showing a section of rich ore ground now being laid open for more than 40 fms. in length. The 110 fm. level end, driving south, is still worth about 70f. per fm., and the 60, driving north, is worth about 50f. per fathom. The 60, driving south, is poor, but if the rich bunch of ore driven through in the 70 holds up the end must shortly improve. The stope and pitch throughout the mine are yielding about their usual quantity of ore.—Glen Roy: Since the rain come on we have stopped the water out of the shaft, and just resumed the sinking. The lode in the shaft is about 3 ft. wide, and is producing occasional stones of lead and blende. The 25, driving north, is producing about 10 cwt. of blende per fathom, and looking very promising for further improvement.

GREAT NORTH DOWNS.—W. Rich, Cornelius Bawden, Sept. 16: We have intersected a branch 1 ft. wide, in the 64 cross-cut south, carrying good stones of strong yellow copper ore. We consider there are some 3 or 4 fms. further to reach the lode in this cross-cut—that is, supposing it has the same underlie below the 44 as seen at that level. The sinking of Butler's shaft is being urged on below the 75; the lode at present is unproductive, but the ground appears changing for the better. The 75, east of Butler's, is being driven by four men; the lode is worth 6f. per fm. The stope in the 64, east of Butler's, are worth 12f., 8f., 7f., and 7f. per fm. We have completed trip-plat at Sleggarn's, and resumed driving the 84 east; the end is worth 6f. per fm. The 84 west looks more promising, and carries good stones of ore. We have set Sleggarn's shaft to sink at 30f. per fathom, instead of 35f. per fm., as heretofore; a very favourable change has taken place in the character of the ground in this shaft, and we trust it will have soon a good effect on the composition of the lode. The four stope, west of Sleggarn's, are worth in the aggregate 40f. per fm. There is nothing new to report on in the 84, west of King's; the stope in the level are worth 12f. and 7f. per fm.

GREAT RETALLACK.—G. R. Odgers, J. Harris, Sept. 16: No. 1 Lode: The lode in the shaft sinking below the 20 has improved, now worth 7 to 8 cwt. of silver-lead per fathom. The 20 north is worth 5 cwt., and the 20 south 6 cwt. per fathom. The stope are worth 4 cwt. per fathom. The prospects in this part of the mine are very good indeed—a more promising lode for the depth we never saw, and, as we said before, the lode shows all the characteristics of the West Chiverton lodes.—No. 2 Lode: We have no change to report in the winze sinking below the 20; the water is more quickly than it was, and the lead is dipping northerly very fast, and, therefore, until the 30 fm. level end touches the shoot of lead we shall not be able to make much progress with the winze; the lode now in the winze is worth nearly double what it was when the winze was commenced, and we think there is little doubt of the 30 opening out a good course of lead.

GREAT SOUTH CHIVERTON.—J. Nancarrow, J. George, Sept. 14: We are making fair progress in

cut, on the lead lode, the ground in the end is impregnated throughout with mastic and prian, and the lode is about 3 feet wide, containing mastic, lead, flookan, and spar.

GUNNISLAKE (Clitter).—Wm. Skewis, J. C. Seccombe, Sept. 17: The engine-shaft is now down 13 fms. below the 23; the lode is looking more promising, with good stones of copper ore. We have set the men sink 1 fm. more for a fork, and also for the skip, which will be completed in about a fortnight, when we shall make the necessary preparations to drop the lift and put in skip-road, and make it all complete. In the 36, below adit. In the 23 west we have intersected the cross-course, and are now driving south to intersect the lode west of it, where we hope to have a good lode. The lode in the winze sinking below this level is 2 ft. wide, composed of spar, mastic, and copper ore, worth of the latter \$1 per fathom, with a very promising appearance for an improvement. The lode in the 12 is 3 ft. wide, worth 6t. per fm., looking very promising for an early improvement. The lode in the stopes in the back of this level is 5 ft. wide, worth 6t. per fathom.

HARWOOD.—Wm. Vipond, Sept. 12: I cannot say there is any change in the mine this week. The rise in Trough vein is nearly up to the top of the limestone, and I think we shall begin with the stopes next week. I fear the rise in Richardson's vein is not going to be productive at this point. We shall begin driving the end again on Monday. We are not up to the limestone at Scar Head. The stopes in north string are nearly done. The men who have the ore bargain at Scar Head have some real good work out, and appear to be doing well.

IMPERIAL.—E. Pearce, Sept. 16: Setting Report: The adit cross-cut to drive south, by four men, at 5t. 5s. per fathom. The 10 fathoms level to drive west of cross-course, by two men, at 6s. per fathom; the lode in this end is disordered by the cross-course. A winze to sink below the 10 fm. level, east of shaft, by four men, at 13s. per fm., lode producing good saving work. To stop in the back of the 20 west, by two men, at 4s. per fm., lode worth about 8 cwt.s. of lead per fathom. The 20 to drive west, by four men, at 9s. per fathom.

LYD RIVER SILVER-LEAD.—J. Gregory, Sept. 16: We have not yet cleared the level on the Indies lode as far south as the end; the level is extended further in that direction than we have been led to suppose; this makes the distance shorter that is to be driven to the intersection of the east and west lodes, and if the character of the lode continues as it is now to the intersection, we might almost depend upon a bunch of ore, more kindly looking stuff cannot be seen, composed of mastic, blonde, spar, and spots of lead, carrying a blue flookan by the side of the lode.

MAUDLIN.—W. Tregay, Sept. 12: In the deep adit east, in shooting out the north side, we have met with strings and branches, producing good stones of copper ore, but have not yet intersected the main part of the lode, which we believe to be still further north; we hope a few days will prove it. In the deep adit west the lode produces stones of copper ore, and is promising for improvement.

MINERA UNION.—W. T. Jenkins, Sept. 17: Low's Shaft: In the 75 yard cross-cut west we have intersected a strong lode, 2½ ft. wide, composed of carbonate of lime, clay, and occasional stones of lead, but not enough to set a value on. We shall lose no time in driving forward to intersect other lodes, which I have no doubt will be found more productive. In the 60 yard level we have sunk a few yards on the course of the lode, which yielded good stones of lead, and is very encouraging.—Brabner's Shaft: The pitch in back of the 80 yard level north is worth 8 cwt.s. of lead per fm. The pitch in back of this level south yields 1 ton per fathom. The pitch in bottom of the level yields 1 ton of lead per fm., and promising for a further improvement.—William's Shaft: There is no material alteration to notice since last report.

MOUNT PLEASANT.—W. Wasley, Sept. 17: Jenkins' shaft is now 5 yards below the 190 yard level. In sinking the above 5 yards we found the ground to be layers of limestone of a very favourable appearance for the production of ore, and the joint is opened out to about ½ yard wide, composed of clay, with some nice-looking spar; altogether, the ground and joint in bottom of the shaft is looking very promising. I have, however, suspended the sinking of the shaft for the present, and placed the men to put air-pipes in the cross-cut, north of Jenkins' shaft, to see if we can get air in the end of the level to drive it on to the Whitseycrook shaft, which would explore a fine piece of ground and well ventilate the engine. I have set the 80 yard level to drive west of Bright's shaft by four men, at 10s. per yard, and 16s. per ton for ore, the men to pay all costs for drawing, &c. The ground and the joint in the end have greatly improved the last day or two, and are now producing some nice lumps of ore.

NEW BIRCH TOW AND VITIFER CONSOLS.—W. Skewis, Sept. 17: Hambley's shaft is to the 60, and the winze in the bottom of the 48 west, on Hambley's lode; the two bottom lifts are fixed in the shaft, together with the cistern and bearings, and the men are now drawing up the 6-in. lift that has formerly been fixed here, in order to send the plunger from the 12 to the 36 fm. level, and so dispense with all the pitwork above the 12 fm. level, as now that the water passes out through the deep adit it will never be required again above this level. The new shaft is nearly down to the 60, and the winze in the bottom of the 48, on the north lode, is down, and the end being driven east towards the shaft.

NEW CROW HILL.—A. Kent, T. Trelease: On Saturday last the following was our measuring and setting:—Sump winze, 4 fms. 1 ft. 3 in., and was re-set to six men and three boys, at 6s. 10s. per fm.; there is no change in the nature of the lode at this place. The pitch in back of the 55 was set to be worked by four men, at 7s. per ton for lead; much change in its value. A rise set to four men to put up east of the said pitch, to open out a stope and work the same conveniently; set at 4s. per fm.; this rise will, probably, be required a little over 2 fms. high. The rise in back of No. 2 stope measured 3 fms. 5 ft.; this is suspended for the present. The 22 end east, on the course of the lode, measured 4 fms.; this is also suspended. At present we are in a very trying position, from want of surface water, having scarcely enough to keep the water out of the mine, leaving stamping out of the question.—Wheat Louis: At the engine-shaft we measured 1 fm. 1 ft. 3 in., and set the same to sink by nine men, at 13s. per fm. The winze sinking below the 60 measured for last month 3 fms. 1 ft. 7 in., and was set to be sunk by six miners and three labourers, at 9s. per fm.; the lode here is not quite so good as last week. In the 60 east for the last month we measured, cross-cutting north, 2 fms. 6 in., and driving east on the course of the lode 2 fms. 8 in., and was re-set at 5s. 10s. per fm., to be driven by three men, and three boys; the lode in this end is letting out a large stream of water, and is also nicely spotted with lead in places.

NEW GREAT CONSOLS.—R. Pryor, Thos. Bennetts, R. Trathan, Sept. 16: Ellis's engine-shaft are making good progress in cutting the ground for the plunger-lift at and about the 74 fm. level; this work is being pushed on with all possible speed. Saturday last being our pay and setting, the usual bargains were set, including 10 tribute pitches, at tributes varying from 6s. to 10s. in 17s., some of which are at the 64 fm. level. At our next setting we hope to be able to set all the pitwork bargains that might be thought advisable for the full development of the mine. Our tributaries continue to break large quantities of copper and mastic, the dressing of which is carried out as fast as possible. Our engines are in good condition, and working well, and everything goes on satisfactorily. Our pay and setting went on well.

NEW PEMBROKE.—F. Puckey, J. Puckey, Sept. 14: We are making rapid progress in sinking the new engine-shaft from surface; since we commenced, now about two months, we have sunk the shaft and secured the same with timber 15 fathoms; the ground is still favourable for sinking. In the 75 west we have intersected the cross-course, which has now the lode; we are now driving through the cross-course and into it 2 fathoms; at this level it is apparently very large, and composed chiefly of flookan. In the western stope behind this end, the lode is 3 feet wide, composed of friable quartz, and pebbles, producing good work for tin in places, worth 20s. per fathom. In the middle stope, further east, the lode is 2 feet wide, and worth 12t. per fathom. In the eastern stope the lode is 2½ ft. wide, and worth 10t. per fathom; the average price for working the different stoves is 4s. per fathom. In the 75 fm. level east and, on the north side, the lode is 6 in. wide, and producing splendid stones of tin. In the same level east, on the south side, the lode is very much improved in size and character, and is of great promise; we have cut into it 3 feet, but have not reached the south wall, the south part of the lode, as far as seen, is producing good work for tin, worth 12t. per fathom, and looking promising for further improvement. This end is near 20 fathoms behind the eastern winze, which is partly sunk below the 60, where there is a very large lode containing tin and copper gone down below that level. We are urging on the driving of the 75 end east with all possible speed with a full pare of men, and from the improved character of the lode, we are decidedly of opinion, as we have before stated, that we shall open out a valuable run of tin ground in that direction. All the other parts of the mine are without alteration, and our surface operations are being urged on as fast as possible.

NEW TRELEIGH.—S. Michell, Sept. 16: The lode in the new shaft is looking very well, worth nearly 3 tons of ore per fathom, and there are fair indications of its continuing good; however, we shall prove this, as we have six hands in each end to commence driving at once both east and west of the shaft. The lode in the winze below the 70 will turn out 35 cwt.s. of ore per fathom, and improving as we sink. There is no change in the 70 end west for the week, but I think we shall see an alteration in the course of the next.

NEW WHEAL TOWAN.—R. Pryor, Sept. 16: The men in the adit level driving west are making fair progress towards effecting the communication to the deep adit cross-cut, which is a little below the present adit level; this bargain was set again on Friday last to four men, at 7s. per fathom, to complete the communication.

NORTH CROFTY.—Joseph Vivian and Son, William Thomas, Jun., Sept. 17: In the 170, west of Petherick's shaft, the lode is 6 ft. wide, worth 14t. per fm. In the 160, west of ditto, the lode is improved, and is worth for copper and tin 10t. per fathom. Praed's shaft is sunk 8 fms. under the 196; lode 4 feet wide, composed of flookan, with small quantities of mastic and spar. The lode in the winze under the 183, east of Praed's shaft, is worth 40t. per fathom. There is no other change.

NORTH JANE.—James Rowe, Sept. 16: There is no change in the 35 main cross-cut south from engine shaft. We have put two men to open on the flookan branch we intersected in the cross-cut a few months ago, but, so far as seen, it is similar to what it was when first cut through. Owing to the extraordinary weather we have been able to try the back of the lode below the stream. We have six men sinking on it, to ascertain its underlie. The lode at this place is 6 ft. wide, and presenting very favourable appearances. As soon as we have ascertained its underlie we shall put the men into the 35 fm. level cross-cut to drive through the cross-course, and see this lode to the east of same, when we feel assured that the same will lead to very desirable results. The engine and pitwork are in first-class order, and our costs are very easy indeed.

NORTH RETALLACK.—G. R. Rodgers, J. Harris, Sept. 16: The lode in the shaft is still producing good stones of silver-lead. Seeing the excellent prospects of this lode in Great Retallack, there is every reason to expect a dis-

covery here soon. **NORTH POOL**.—J. Vivian and Son, Fras. Clymo, Sept. 17: We are cutting the lode in the 40 fm. level, and find the channel of clay-slate to be highly favourable for copper, being of a much better character as a metal-bearing stratum than any rock we have hitherto met with in other parts of the mine. We find, also, the clay slate traversed by veins of copper ore of some inches in width, which are to the north of the lode, and will form feeders to it in depth. In a few days more we shall commence sinking on the course of the lode, when we hope to be able to report to you favourably on its appearance and composition. In the 40, west of Ballarat shaft, the lode has been small, but is again increasing in size. In the winze sinking under the 40, east of Ballarat shaft, the lode and rock present very favourable appearances,

the former containing a little copper ore. In the 40 east of sump, on the main lode, the results being met with are unfavourable. The stopes in the back of the 40, west of sump, on main lode, continues to yield 2½ tons of copper ore per fm.

NORTH TRESKERBY.—R. Pryor, John Tregoning, T. Jenkins, Sept. 17: Treskerby's Shaft: The lode in the 140, driving east of this shaft, is 4 ft. wide, producing occasionally stones of copper ore. The lode in the 130, driving east, is 4 feet wide, worth 1½ ton of copper ore per fathom, looking kindly. The lode in the 120 east is 1 foot wide, producing good stones of copper ore. The lode in the winze sinking in the bottom of this level is 4½ ft. wide, worth 18t. per fm. The lode in the 110 east end east is 3 ft. wide, worth 2 tons of copper ore per fathom. The lode in the stopes in the back of the 36 is looking kindly, producing good stones of copper ore. All other places continue without change. We have commenced sinking a shaft in the new piece of ground, which will take the lode about 20 fms. below the surface, the sinking of which will be pushed on with all speed.

OLD GUNNISLAKE.—H. Rickard, Sept. 16: On Saturday last the following bargains were set:—Four pitches to eight men, at 12s. in 17s.; six other pitches

time not out. The 91 fm. level cross-cut, south from Michael's shaft, by six men, at 13s. per fathom; stoned 2 fathoms. The 48 fm. level cross-cut, north from Parker's shaft, by six men, at 5s. per fathom; stoned 4 fathoms, or cut the lode. All filling, trammung, and landing to four men, at 14t. per month. The tribute department is much as usual. We are busily engaged in dressing the ore, which is thus far of better quality than the last.

PARK OF MINES CONSOLS (St. Endon).—J. Stephens, J. Hooper: The preliminary works of these mines are being pushed on with the greatest vigour.

We have cleared up the adit at the 15 fm. level, for 160 fathoms, and are now preparing the floors for the trial engine, which will be at once erected. In No. 2 shaft the lode is 3 ft. wide, very rich for tin, and the lode in No. 1 shaft is 9 ft. wide, with good rich work throughout the stone. We have several tons of tin already up to surface waiting for the completion of the necessary machinery to prepare it for market.

PEDDN-AN-DREAU UNITED.—W. Tregay, J. Thomas, Sept. 12: Sump: In the 140 west end the lode is worth 10t. per fathom. In the 130 west we have not yet reached the footwall of the lode, which is very hard, letting out much water, and producing stones of tin. In the 130 west rise the lode is worth 6t. per fm. In the 120 west winze the lode is worth 10t. per fm. In the 120 east end the lode is worth 12t. per fm. In the 90, east of Bragg's cross-course, the lode is still in an unselected state, producing about 6t. worth of tin per fathom. In the 88 east the tinstuff is now of pretty fair quality, and is being got away with facility.—Cobblers': In the 120 east end the lode is worth 8t. per fm. In the 120 west end the lode produces stones of tin. The stopes in bottom of this level are worth 16t. per fathom. In the 110 east winze the lode is worth 6t. per fm.—North Mine: In the 55, north, east, and west, we have been prevented working by the quantity of attle coming from the 47, which is being thrown down through the north shaft, and trammung thence into the stull. The 47 is now nearly cleared, and we have four tribute pitches at work in this level. The pitches in the 47, 30, and 20 fm. levels are looking well, and producing large quantities of fair quality tinstuff.

No. 6 shaft is widening out, and also improving in bulk as we go down. Visible gold has been broken almost daily since last report, and the gold is still showing in the solid rock in the bottom of the shaft; this shaft has now been sunk 66 ft. from surface. The lode in the end east from No. 5 shaft is 3½ ft. wide, and of fair quality. In the end being driven west from No. 4 shaft the lode is scarcely so wide, but of the same quality as the lode in the No. 5 end. At the Old Clogau

mine the men are still engaged in winding stuff and water from the bottom of the mine. At the Vigras Mine the dravage of Jenny's adit is still being pushed forward as usual. At the reduction works we have scarcely sufficient water to turn the wheel. Early next week I shall forward to you a bar of gold.

WEST DEVON CONSOLS.—J. Richards, Sept. 15: Good progress is being made at the mine. The smelters' shop and powder house are being repaired, and the saw-pit is being made near the engine-shaft, which will be much more convenient for working. The engine-shaft is nearly squared down to the adit level, and a bob-plate at that point will be soon commenced; this will be necessary to enable us to break the angle in the shaft, &c. The lode in the adit level is several feet wide, composed of quartz, capel, mastic, and spots of copper ore, and there is every reason for believing that a full and effectual trial of it will be attempted with good and profitable results.

WEST DRAKE WALLS.—Thos. Gregory, Sept. 16: In the 40 fm. level cross-

cut north good progress is being made, the ground being of a favourable character, with rather an increase of water. The ground in the 40 fm. level cross-cut south is rather harder, occasioned by some floors of quartz. There appears to be a change for the better in the present end to-day, therefore I expect we shall now make better dispatch.

WEST GODOLPHIN.—J. Vivian and Son, J. Pope, Jun., Sept. 17: We have

communicated a new shaft to the 8 fm. level, which has improved the ventilation to the bottom, or 35 fm. level at Pauli's shaft. We shall now, therefore, be able to resume the sinking of the last-named shaft, which is an object of great importance, seeing that we have such good tin ground in and to the east of the shaft, which appears to be improving in depth. The bottom of Pauli's shaft is now worth 10t. per fathom. In the 35, east of Pauli's shaft, we have intersected the cross-course, and discovered the lode on the eastern side of it, where we find it quite as valuable as has hitherto been on the western side of the cross-course, being worth full 10t. per fathom. In the 25 east the lode is worth about 37. per fathom. In the 8 and 15 fm. levels east there is no alteration to notice. The counter lode in the deep adit level south, east of footway shaft, is 2½ feet wide, producing through, and presenting a highly favourable appearance. The tribute pitches are turning out as well as expected. The prospects of the mine are very encouraging, and particularly so at Pauli's shaft, and eastward from thence on Hope lode.

WEST MARIA AND FORTESQUE CONSOLS.—Wm. Skewis, Jas. Donnal, Sept. 15: West Maria Lode: The drivage is by the side of the lode in the 60, east of Maria engine-shaft. There is no change to notice in the stops in back of this level since last report. The lode in the 50 east continues to be worth 20t. per fathom. The rise in back of this level, and No. 1 stope, are each worth 16t. per fathom. No. 2 stope has improved, now worth 25t. per fathom. The part of the lode being carried in the 40 east is 4 ft. wide, worth 12t. per fathom; the character of the lode here is precisely similar to that in the 50 fm. level, and from the change that has taken place and the present appearance we anticipate a still further improvement. The ground in the new shaft is still favourable for working.

WEST PRINCE OF WALES.—W. C. Cock, Sept. 15: The main lode in the 16, east of north engine-shaft, is a little harder, containing more spar; there is no other change.

We have begun driving east and west on the south lode, in the 16, at south shaft, and I am much pleased to say that we have broken some good stones of copper ore from the eastern end. We have not yet opened on the leading part of the lode in the western end. In looking at the change in the nature of the ground, and the character of the lode, I am decidedly of opinion that we are just getting down on the top of productive ground, and would advise that the sinking of this shaft be resumed without further delay, believing that the sinking of another lift will place us in a position to send ore into the market. I would also remark that the ground having become firmer the shaft is not likely to require near so much timber as formerly.

WEST WHEAL KITTY.—W. Vivian, Sept. 16: The prospects of the mine are much the same as they have been for some time past. The dry weather still continues. We are not doing much as the stamping mills at present. We hope to have a change shortly, and increase our returns of tin considerably.

WEST WHEAL TOLGUS.—Sept. 16: The ground in Taylor's engine-shaft is pretty good, and the men are making fair progress in sinking. The lode in the 95 west is not looking quite so well for ore, now yielding 5 tons of ore per fm.; there is more pebble and mastic in the lode than we have seen in it before. In the 55 east the lode is 6 feet wide, with more spar in it than usual; this end is producing 5 tons of ore per fathom. The lode in the 85 west is large, but unproductive. In the 85 east the part of the lode that is being carried is 4 feet wide, and will produce 3 tons of ore per fathom. The lode in the 75 has a promising appearance for improvement, and is now worth from 2 to 3 tons of ore per fathom. In the 65 west the lode is still in a disordered state by a limb of a cross-course. The lode in Richard's shaft, is 6 feet wide, composed of spar, killas, blonde, and occasional stones of ore. The water is just the same in quantity as for some time past, not enough to work the engine, and more than we want for making good progress in sinking. Our stope are five in number, four of which are worth from 12t. to 14t. per fm.; and in one the lode has not been taken down since last setting-day. These stope are working by 30 men. We sampled yesterday (computed) 335 tons of ore.

<b

made in a previous Journal, has issued its prospectus. The purchase-money is fixed at 4000*l.*, of which 1600*l.* is to be in cash, and the remainder in fully paid shares. The sett is a mile in length and three-quarters of a mile wide, and it is the opinion of all practical miners that the nearer the lodes approach each other in depth the greater are the deposits of mineral.

At the Truro Ticketing, on Thursday, 3522 tons of ore were sold, realising 13,750*l.* Os. 6d. The particulars of the sale were:—Average standard, 104*t.* 19*s.*; average produce, 6*s.*; average price per ton, 3*t.* 18*s.*; quantity of fine copper, 223 tons 7 cwt. The following are the particulars of the sales during the past month:—

| Date. | Tons. | Standard. | Produce. | Per ton. | Ore copper. |
|----------|-------|------------|----------|----------|-------------------------------------|
| Aug. 20. | 3754 | £105 3 0 | ... 6% | £4 0 0 | 12s. 5 <i>1</i> 4 <i>d.</i> £62 7 0 |
| " 28. | 1622 | ... 97 9 0 | 75s. ... | 4 18 0 | 12 5 <i>1</i> 2 62 7 0 |
| Sept. 3. | 1669 | 103 5 0 | 75s. ... | 4 2 6 | 12 4 <i>1</i> 2 61 18 6 |
| " 10. | 1155 | 104 19 0 | 6% | 3 4 0 | 11 3 <i>1</i> 6 56 7 6 |
| " 17. | 3522 | 104 19 0 | 6% | 3 18 0 | 12 4 61 11 0 |

Compared with last week's sale, the advance has been in the standard 2*t.*, and in the price per ton of ore about 2*s.* 9*d.* Compared with the corresponding sale of last month, the standard is about stationary.

At East Pool Mine meeting, on Monday, the accounts for June and July showed a credit balance of 983*l.* 12*s.* 10*d.* A dividend and bonus of 96*l.* (7*s.* 10*d.* per share) was declared. The committee state they "are pleased in being able to congratulate the adventurers on the realisation of the prospects anticipated in the report at the last meeting, on July 13, even without any advance since that date in the price of tin." The dividend declared to-day of 5*s.* per share, and bonus in addition of 2*s.* 10*d.*, has essentially resulted from the diminution of the merchants' bills as compared with April and May, the increased quantity of arsenic disposed of, and the beneficial advance in the price of the latter article, which is likely to be maintained."

At the Great Laxey Mining Company meeting, at Laxey (Isle of Man), on Sept. 11, the directors declared the usual quarterly dividend, of 10*s.* per share.

At Wheal Trelawny meeting, on Thursday (Mr. W. Nicholson in the chair), the accounts showed a debit balance of 1007*l.* 2*s.* 1*d.* A call of 1*t.* per share was made. Details in another column.

At Lovell Consols general meeting, on Thursday (Mr. J. Batchelor in the chair), the accounts to the end of July showed a debit balance of 334*l.* 18*s.* 9*d.* A call of 2*s.* per share was made. Capt. Chappell reported that the lode in the adit was worth 30*s.* per fathom for tin, and that every exertion should be used in driving the 12 fathom level. Details in another column.

At the Stiperstones Mining Company meeting the report of the directors congratulates the shareholders upon the encouraging appearance of the mine. The difficulties in the two engine-shafts, which have been the cause of so much delay, have been surmounted, and there is now every reason to expect that the sales of ore will steadily increase. The report of the manager (Capt. James Nancarrow) stated that on Sept. 11 there were 80 tons of ore at 11*t.* 18*s.* 6*d.* per ton, and they would soon have ready another parcel if they could have some rain. A parcel of blende was being prepared. All the machinery and surface works are in good order, and he was pleased to say that, on the whole, the mine is opening out very well.

At North Roskear meeting, on Tuesday (Mr. F. Pryor in the chair), a call of 1*t.* per share was made. The agent's report was of an encouraging character. Much dissatisfaction was expressed at the meeting by some of the oldest and largest local shareholders with the proceedings of the new London committee, who, without consulting the wishes of the adventurers at the meeting, instructed the secretary, Mr. W. Ward, of London (who was present), to appoint Mr. V. Bennett, who was dismissed in the most summary manner, and without any apparent reason. This unusual procedure was resented by many present refusing to sign the cost-book.

At the Bradda Mining Company meeting, held in the Isle of Man, on Sept. 10 (Mr. G. W. Dumbell in the chair), the accounts showed a credit balance of 204*l.* 14*s.* 10*d.* The report of the directors stated that the present appearances of the mine led them to entertain a firm conviction that depth only is wanting to make it a dividend-paying property. If it continues to be pressed forward with energy. The report of the agent (Capt. Barkell) stated that his confidence is still unshaken as to the mine proving a successful and permanent undertaking. The Chairman, in moving the adoption of the reports and accounts, referred to the different points of operation, and expressed confidence in the future. Mr. P. Killey seconded the proposition, which was put and carried unanimously. Messrs. John Delaware Lewis and L. W. Adamson were re-elected directors. Mr. James Haining was re-appointed auditor. Votes of thanks were passed to Capt. Barkell and to the Chairman.

The Bank of England return for the week ending on Wednesday evening showed in the ISSUE DEPARTMENT a decrease in the "notes issued" of 52*l.*, which is represented by a corresponding decrease in the "coin and bullion" on the other side of the account. In the BANKING DEPARTMENT there is shown an increase in the "public deposits" of 259,803*l.*; in the "seven day and other bills" of 30,735*l.*; and in the "rest" of 2169*l.*; together 229,707*l.*; and a decrease in the "other deposits" of 114,199*l.*—178,508*l.*; and adding thereto 91,836*l.*, the decrease in the "other securities" on the asset side of the account, there is shown a total increase in the reverse of 270,344*l.*

ST. JOHN DEL REY MINING COMPANY.—The advices received by the last mail inform the directors that on Aug. 12 the lander on duty at surface, close to Robertson's shaft, in the East Quebra Panella section of the Bahia, saw smoke issuing from the shaft, and sent notice to the captain, who, on arrival, found there was some considerable fire adjacent to the shaft, on the east side. Active steps were at once taken to ascertain the seat of the fire, and measures adopted to suppress it and prevent it spreading, which were successfully applied, and the fire extinguished within an hour and a half from the time the issue of smoke was first noticed. The damage which has been done is quite insignificant, being only the "candeas" poles, forming the covering of the stull, to the extent of 9 feet by 7 feet. Although considerable time has been given to the investigation of the cause of the fire, Mr. Gordon is at present unable to say with certainty to what it is attributable. The general gold return at Morro Velho for July is less by about 2337 oitavas than was extracted in June. The quantity of stone reduced in July is 43 tons more, having one more day for stamping, but the standard yield is 1673 oits. for July, that for June being 2214 oits. per ton. The Gain return has given 21 oits. more, but the standard yield is not so good, being only 2484 oits., as compared with 2683 oits. obtained in June. As will be seen by the statement which appears in another column, the operations during July resulted in a loss of 1370*l.*

CHONTALES.—It is satisfactory to find that Mr. Belt has recovered from his late indisposition. Mr. Belt's reports upon the mines are the most satisfactory yet received. The remittance of gold is 397 oits., from 759 tons of ore, the result of 18 days' working. It is stated that this remittance would have been considerably larger but for the damage done to the tramway and water-course by a sudden and heavy flood, which stopped the working of the stamps for several days. This damage has been repaired, and the stamps put in full working order. The health of the establishment continues good. The reports appear elsewhere, from which it will be seen that Mr. Belt has made great progress in preparing for 12 additional stamps at St. Domingo, and he thinks he may promise to have them at work within two months after their arrival at San Ubaldo. Mr. Belt has got most of the timber required for them in, and has 12 men at work at the excavation for them. Mr. Belt adds that all his statements with regard to large profits, as soon as sufficient stamps are erected, have been grounded on a solid basis—everything is looking most flourishing. Advices have been received from the agent at Greytown that the first portion of the stamps had been dispatched up the river.

DON PEDRO NORTH DEL REY.—The advices, published in another column, show that the profit realised during July amounts to 4318*l.*

LEAD MINING.—Of the public dividend lead mines in England and Wales nearly one-half are situated in the Principality, while they yield considerably more than one-half of the aggregate amount paid in dividends. As an evidence of the progress of public estimation in favour of lead mines as an investment, it may be remarked that in 1862 there were 13 public lead mining companies, which divided during the year 70,590*l.*; but in 1867 the number had been increased to 18, which divided 127,280*l.* The paid-up capital amounts to 468,073*l.*; the sum paid in dividends, 1,263,587*l.*; and the current aggregate market value, 1,372,657*l.*

MINING IN WALES.—Operations at the Brynystwith Mine are progressing satisfactorily, and, as will be seen by the report, which appears in another column, already "in clearing out the eastern end large lumps of lead are found, some weighing as much as 40 lbs, containing splendid lead, with mixture of spar." Every preparation is being made, with the view of opening out the mine upon a scale commensurate with its merits.

MINING IN THE LOVELL DISTRICT.—There is now another important addition to the mines in this district, and one, too, that will, according to present appearances, prove a lasting and profitable mine. Lovell Consols, to the east of Trumpet Consols, has cut a lode in the bottom of the adit, worth 30*s.* per fathom for tin, and every exertion

is being used to get under it, by driving the 12 fathom level, which they will do in about 6 fathoms further driving. The general meeting was held on Thursday, the particulars of which appear in another column, at which a call of 2*s.* per share only was considered necessary, so that on the score of economy there is not much to be desired.

MINE ACCIDENTS.—At Wheal Basset, Thomas Hodge, aged 19, was killed by a fall of stuff, which buried him alive.—At North Wheal Basset, William Johns was killed by a fall in the shaft. He has left a wife and large family unprovided for.

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Notices to Correspondents.

* * * Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt: it then forms an accumulating useful work of reference.

COAL—SLATE—NOVELTY.—The readers of the Journal have been lately furnished with a novel kind of rule for computing the value of mineral properties. When I have the time, I shall ask to trespass on your space by commenting on some of the questionable notions so freely advanced, evidently by a would-be wise, profound, and practical reasoner. His system of valuation is certainly of an extraordinary character. I presume that all who move in promotion circles, and having quarries for sale, would be pleased to find buyers who are blind enough to do business upon the principle advocated in the correspondence in question. A vote of gratitude will, doubtless, be forthcoming from some parties interested.—CAPITAL.

THE VALUE OF COAL PROPERTIES.—I shall be most happy to treat with any person, or gentleman of means, who is in quest of a coal speculation, upon the terms set forth in a letter which appeared in last week's Journal, signed Samuel Jenkins. Certainly your correspondent feels a keen regard for us colliery proprietors, and I wish him every success.—A LARGE COLLIERIE PROPRIETOR : London.

MINERAL PROPERTIES—THEIR VALUE.—In No. VIII. of my series, in last week's Journal, you make me say that Messrs. Casson and Co. bought the Diffwys Quarry for £20,000., while it was Messrs. Casson and Co. that sold it for that sum.—SAMUEL JENKINS.

FOREST OF DEAN.—“Enquirer” should obtain the Rev. Mr. Nicholls's “Iron Making in the Olden Times, as instanced in the Ancient Mines, Forges, and Furnaces of the Forest of Dean.” The work is published by Mr. C. C. Hough, of Coleford.

DON PEDRO NORTH DEL REY.—Through an inadvertence, I regret to find it stated in my remarks in last week's Journal that purchasers of Don Pedro shares would be entitled to the dividend up to Sept. 30. It should have been up to Sept. 16 only. I may here state that my only motive in mentioning the subject of dividend at all was to advise the public of what very many probably were not aware—that the shares would not be dealt in ex dividend until after the fortnightly settlement, which occurred on Sept. 16.—EDWARD COOKE: Old Broad-street, City.

SCALE FOR ADVERTISEMENTS.—To avoid the necessity of frequent application, we may state our charge for general advertisements is—for six lines and under, 4s.; per line afterwards, 6d. Average, twelve words per line.

SHARE DEALING.—We never interfere in the sale or purchase of shares; neither do we recommend any particular mine for investment or speculation, or broker through whom business should be transacted. The addresses of most of the latter appear in our advertising columns.

THE MINING JOURNAL
Railway and Commercial Gazette.

LONDON, SEPTEMBER 19, 1868.

THE IRON TRADE.

It takes a long time to teach some men the lesson implied in the familiar aphorism—"Let well alone." If the proverb had been acted upon we should have had no "Black Friday," with all its distressing results; nor should we have had many of the labour disputes that have occurred, and wrought poverty and suffering in the poor man's household. However much ironmasters, in the recollection of the recent past, may be disposed to adopt the punning motto of the ONSLOW family, and "make haste slowly," their operatives are not so inclined, even though the remembrance of the recent past may in their case, too, be acute. The reports which we have now for some few weeks past published from our correspondents in the different centres of the iron industry of the United Kingdom have all shown the setting in of an improved demand for iron of all kinds, with a consequent increase of work. For very long time previously the reports from the same centres were of an altogether opposite character. They showed that extremely little work was being done; and that to secure even that little very low prices had to be accepted. There was, therefore, a great void to be filled up before a condition of average prosperity could be said to have set in; machinery, which had been kept standing, not only unproductive, but also a source of loss to its owner, had to be again laid under contribution; and above all, prices had greatly to improve—all before it could be asserted that we had fairly embarked upon a prosperous tide.

That happy state of things has not yet arrived. It is only in rare instances in any one of the ironmaking districts that the full productive power has been again employed, and in rarer still where prices have been brought up to the current orthodox standard—that standard upon which the prevailing rate of workmen's wages has been fixed. Yet the protracted depression has hardly begun to disappear, and a state of prosperity scarcely commenced to loom, than some evil, unresting genius, by whom the men seem to be constantly haunted, would appear to be again prompting them to acts of folly which, if they should be carried out in their entirety, would assuredly throw masters and men back into the slough from which they seem now to have a prospect of extricating themselves. Last week a circular was issued to the men in different parts of the kingdom, setting forth that at a meeting which was held in the North, it was resolved "that a deputation from each work wait upon their employers on Monday, the 14th inst., and ask for an advance of 1s. per ton on puddling, and 10 per cent. on mill-work." Acting upon that document, there have been cases in which workmen waited upon their employers on Monday last. It is hardly necessary to say what was the result of the interviews. Of course, the masters were not able to comply with the request of the men. Indeed, some of the latter had themselves so little expectation of rise being granted that, instead of asking for it in so many words, they simply enquired if there were any probability of an advance being given? The masters, even in these cases, said that there was not. The persons at whose instance the movement is commenced were all aware that next week the Preliminary Meetings of the Ironmatters will begin, and this juncture has, doubtless, been chosen that the proceedings of those meetings may be influenced by what the men desire. It was to the probable action to be taken by the masters on those occasions that the enquiries of the men had reference when they asked if it were probable that there would be an advance.

The character of the interviews will enable the deputations to re-

port to their fellows at representative meetings, suggested in the circular before described, that there is no probability whatever of any change being declared in the price of finished iron at the preliminary and quarterly meetings. The first will come off in Birmingham next Thursday, to be followed by the northern meeting, which will be held in Newcastle on the succeeding Tuesday. Afterwards will come the North Staffordshire meeting at Stoke. We venture to assert that even before the first meeting is held there will be less activity at the works than there is now, and that by the time the quarterly meetings commence, a fortnight afterwards, the quiet aspect of affairs will be even more marked. At that date all means of getting iron and steel by the ordinary routes into Russia and Canada will have terminated for the season. In the making of iron to supply the markets in those parts of the world, the works in England (north and south), and in Wales and Scotland, have been for the most part employed in every case in which there has been a brisk trade done. Whatever specifications remain on the books for those markets three weeks hence will be cancelled. To prevent the list of cancelled orders being more than the smallest reasonable minimum, the full power of works has been strained, and with a fair amount of success. In less than another week from this date the last sailing vessel for this season will have weighed anchor, and very little will after that be sent out. In any pressing case, however, there will be the chance of the steamers for another fortnight; but, inasmuch as transit by that means represents an additional 10s. a ton on the iron, it is improbable that much will be sent out per packet. During the past three weeks telegrams have reached the works in rapid succession, urging the ironmasters to press forward the execution of the orders entrusted to them, and to dispatch the goods by certain vessels named, so as to prevent the loss of the orders. The houses concerned have been able to send away the bulk, and already the quantity *in transitu* to the ports has begun sensibly to decrease.

The Russian demand is attributable chiefly to the great impetus recently given to railway work by the Czar's Government. With the rails and their fastenings there have also gone out more than the customary quantity of sheet-iron for roofing, and also of the general descriptions of merchant iron and of machinery. The Canadian demand, there is some reason to conclude, is larger than would have been the case if the duties upon iron imported into the United States had not been so heavy as they are. It has been for some time remarked throughout the iron trade centres that the United States' orders have not been of so much worth as it was expected they would be at this date after the recent internece strife. Instead of the iron and steel products bought by the States from this country increasing as the period since that struggle lengthens, it decreases. It has been shown that the value of the iron and steel, and the manufactures of those metals imported into the United States in the first five months of this year was only \$7,454,000, against \$10,729,000 in the corresponding period. Some portion of this diminution may be traceable to a reduction in price, but certainly not much of it. It is true that the Americans are increasing their productive capability, but the comparatively small quantity of iron and steel which they have been turning out in the same time is not a sufficient explanation. There is some reason to conclude that, as the United States' officers have for some time shrewdly suspected, the Canadians have been able to assist consumers in the States. Before the season now closing began there were fears that the Canadian trade would be very limited in extent, but it has turned out that we have had one of the best seasons with Canada for iron that has fallen to our lot for some few years past. This is the more significant because we have information that for domestic use Canadian stores were previously well supplied.

These particulars of the chief trade being done we have sketched, in order that the men may know how matters stand. They will have perceived that just now the apparent return of prosperity is exceptional. It is impossible for any man connected with the trade, whether as a master or a workman, whether as a merchant or a consumer, to forecast at the ensuing meetings of the trade what will be its condition even six weeks hence. The probability is, as we have intimated, that it will then be much less satisfactory than it is now, for although there is a slight increase in the demand on home and also East Indian account, that demand will be altogether insufficient to make up for the closing of the season ports. No improvement can, consequently, be brought about in prices, and there will be less demand for labour. Still, even then, business will be much better than it was a quarter ago, and if it should not be checked by any misdirected action on the part of the men the improvement will gradually become more developed. The excellent harvest, with its consequent diminution in the price of food; the return of confidence, with its increased disposition to engage in business, and the impatience of money-owners to employ their property with more profit than is now attending its investment, will all contribute to the state of things which will, it is hoped, soon justify a declared advance upon the existing low price of iron, and necessarily low scale of wages. Immediately that that time arrives the ironmasters will only be too ready to avail themselves of it; and they have never yet increased the price of iron without at the same time advancing wages. But—and the men should bear it in mind—ironmasters have reduced prices without at the same time reducing wages. In the interest alike of men and masters, we trust that the men will leave well alone, and not spoil the prospects which are before them by an undue haste to secure that which they are sure to get if they will only exercise a little patience. If they now grasp at the shadow they will most certainly lose the substance.

TRADE LEGISLATION IN THE NEW PARLIAMENT.

In purely party and political circles there is now much anxiety to prevent any constituency from having the opportunity of returning Conservative or a Liberal member, as the case may be. Each party is working with vigour to secure the majority in the great division of December. We would it could be said of the trading classes—and of those in particular upon whom the country is dependent for its minerals and its metals—that they are taking a leaf out of the book of the politicians, and resolving that there shall be no trading constituency which shall not have the opportunity of returning a trade member. Men who are now reviewing the constituencies in different parts of the kingdom upon purely political grounds express their astonishment that so little is being, or has been, done to this end by the mercantile classes. "Strange to say (wrote one of these in an influential daily contemporary a few days back) the mineral interest of Cornwall is not represented in the House of Commons." And strange indeed the assertion will sound in the ears of all who were not previously familiar with the fact. Yet so it is. The nearest approach to a satisfactory alteration is that which has begun in East Cornwall, where Mr. BRYDGES WILLYAMS, a member of the great copper smelting firm of SIMS, WILLYAMS, and Co., London, is put forward with Sir JOHN TRELAWNEY. We wish Mr. WILLYAMS every success, and rejoice to learn that his return may be considered certain. But is Mr. WILLYAMS to be the only one of the 14 members which Cornwall has now a right to send up who can be regarded as having even the comparatively remote trading connection with the mining interests of Cornwall which his vocation implies? If it be so, then the mining interests of the other parts of the kingdom may well employ the Cornishman's historic enquiry, and ask "the reason why."

But Cornwall is not the only mining county in Great Britain in which apathy and inertness is being evinced, at a time when all should be sensitiveness and activity. The readers of this Journal have been made aware of the claims of the trade candidates already in the field in certain parts of the United Kingdom; and intimation has been given of the necessity there is, even out of Cornwall, for the extension of the list. We again appeal to the constituencies to put forth the requisite effort. They may depend upon it that if the right men are not nominated others will be brought forward at the last moment, whose success will have to be deplored. We must have men who are sound upon the labour question. The paramount importance of this subject to the mining and metal interests of Great Britain—aye, and to the world—is admitted by every man who occupies the position of an employer in either department. Still, as a rule, he is doing comparatively little to secure the return of men who are sound upon the point. The importance of the subject is seen by the candidates themselves very clearly; but their ability to grasp it with the mental

vigour resulting from a practical conviction of what is necessary is not so apparent.

Amongst these Mr. LANCASTER, who is one of the candidates for Wigan, must not be classed. We need hardly say that that gentleman is at the head of the Wigan Coal and Iron Company, who are trading with a capital of 1,600,000/. Nor need we remind the readers of the *Mining Journal* that against that company chiefly was directed the three months' strike, by upwards of 20,000 miners. Such a man may well be believed to have formed a pretty decided opinion upon the subject. That opinion Mr. LANCASTER has formed, and he is so impressed with the vast interests involved in its solution, that he has determined, if he should be returned to Parliament, to devote himself to it. The remedy he proposes is the natural one, and that which alone can prove satisfactory and lasting—that the relations between masters and workmen shall be placed upon a sound and simple basis, universally recognised. This he is convinced can only be done by restoring that directness of contact and communication between the employers and the employed which in the rapid development of trade in this country has been thrust aside, and temporarily lost. A man entertaining these views, based upon conviction, resulting from actual experience, and possessing Mr. LANCASTER's ability and energy, will be of the utmost value in Parliament.

Similar views were expressed before the Trades Union Commissioners by Mr. ABRAM S. HEWITT, the United States Commissioner to the Paris Exposition. Our legislation upon the subject will, therefore, assume vast significance; and the necessity for men of experience in the matter, as all iron and coal masters must be engaged in its adjustment, becomes increasingly manifest every day. Of this no better proof can be given than the tone of the debates at the Brussels International Congress of Workmen, where it was laid down that "strikes are the means of completely emancipating the working man."

MINERAL WEALTH OF NORTHAMPTONSHIRE.

In the history of the mining industry of this kingdom there is scarcely anything more surprising than the rapidity with which the Northamptonshire ironstone field has been developed, notwithstanding the many adverse opinions as to success with which the first promoters were favoured. On comparatively barren spots, as well as on the cultivated land, for a distance of from 50 to 60 miles, commencing on the borders of Leicestershire, and proceeding along the Midland route to its junction with the London and North-Western at Wellingborough, the brown stone was found close to the surface. Still farther on, through the town of Northampton, and branching out of it in all directions, to Duston, Weedon, Gayton, and Blisworth, the ore was found in abundance. Indeed, the resources of the county are at present far from being defined, and it will be for future chroniclers to give something approaching accurate information as to the extent of the valuable beds of ironstone, of which at present a comparatively insignificant portion is being worked, although producing about 500,000 tons of ore per annum, and standing sixth on the list of ore-producing counties. Seeing that many of the old districts, on which dependence was formerly placed for the material for making iron, are gradually becoming exhausted, Northamptonshire is evidently destined to become one of the principal centres of the iron trade in the kingdom. Its importance will also be increased when the best and most economical modes of treating the brown ores of the county become thoroughly known, which is admittedly not the case at present.

On visiting the district during the last few days, we were not a little surprised to find a number of puddling-furnaces at work in the town of Northampton itself, although in the usual channels of information, as well as in the Annual Mineral Statistics published at the instance of Government, no mention is made of them. The firm at which they were at work was that of Messrs. STENSON and Co., and who produce a very good description of steel-iron from a mixture of scrap and native pig—a considerable quantity of what is made going to the extensive agricultural implement works at Bedford, belonging to the Messrs. HOWARD. Not far from the works of Messrs. STENSON is the hamlet of Duston, from which there is a tram-line to the London and North-Western Railway, and where there are extensive cuttings, from which a good deal of ore is obtained, the quantity for 1868 being upwards of 132,000 tons. Two or three miles farther on is the Heyford Company's works, where there are three furnaces built, but seldom, we believe, is there more than one in blast all the year. A considerable portion of the stone used comes from Gayton and Blisworth, where there is a station on the London and North-Western Railway, by which a good deal of the ore from the two places named is forwarded into Staffordshire and Wales.

At the extreme end of the county, on the Midland system, some extensive fields of ironstone are being worked to advantage, whilst others are being opened out. On the Holt Hall estate, in Leicestershire, ore is being raised, whilst the site for four blast-furnaces has been laid out, and ample and suitable space for rolling-mills in their vicinity have been left. Good stone is also being raised in the neighbourhood of Kettering, and on the estate of General ARBUTHNOT and others, whilst amongst other owners may be named the Chancellor of the Exchequer and the Hon. Mr. STOPFORD, whose ground has but recently been broken. At Glendon, Irthingborough, and Wellingborough, however, may be said to be the principal works in the county, so far as raising ore, and converting it into iron. The Glendon Company have now two furnaces in blast, and appear to have got successfully to work, having the advantage of direct railway communication from the furnaces. At Wellingborough Messrs. BUTLIN have two furnaces, but only one in blast. At their new works at Irthingborough, situate close to the Midland and the London and North-Western Railways, there is one furnace in blast, and another all but finished, while there is the site of two more marked out. Those works are now the most extensive in the county, and are of a truly model character, having been erected by Mr. W. BUTLIN, from his own plans. They are well situate, every appliance having been adopted calculated to economise labour, space, and fuel, whilst the machinery embraces all recent improvements. Mr. W. BUTLIN, who is a thoroughly practical man, has devoted a good deal of time to the carrying out of various experiments for the production of a superior quality of iron, and there is every reason to believe that his ultimate success will be equal to that of the North Country makers, to which we shall shortly allude hereafter. With regard, then, to the ironstone of Wellingborough, some of the fields through which we passed contained ore of a rich character, and must have yielded 50 per cent. of iron—far above the average at which it has generally been rated. In proof of this, we are enabled to give the result of the week's work of one of the furnaces whilst we were there, and which we presume is not far off the average. Leaving out the details, we may state that from 340 tons of stone, with 100 tons of limestone, there was produced 141 tons 10 cwts. of iron long weight, or 151 tons 10 cwts. short weight, showing a yield or 44·58 per cent. of good iron, being only exceeded in richness, we believe, by the hematites of Lancashire and Gloucestershire. With such a quality of stone, thereto, Mr. BUTLIN, from calculations which he has made, is of opinion that he could supply even the famed Cleveland district with stone cheaper than it can be raised there. The Wellingborough ore, he considers, he could deliver at the seat of the principal iron works at about 10s. per ton, and considering its greater fusibility and larger percentage of iron, those two advantages would more than counterbalance the extra charge caused by carriage—that is, presuming that the Yorkshire stone, at 4s. 6d. per ton, took 3½ tons to produce 1 ton of iron, the Northamptonshire stone producing on the average 42 per cent. of iron. In the present condition of the iron and steel manufacture the above facts, we have no doubt, will be duly weighed and considered.

One important branch of the iron trade may be said just now to be in a state of transition, for great efforts are being made, particularly in the Cleveland district, to produce a quality of steel suitable for rails in particular from the native ore, and so far with considerable success. Already several patents have been taken out for the conversion of pig into steel, amongst others by Mr. J. GJERS, and Mr. JONES, of Middlesborough. The great object to be obtained in the first instance appears to be in removing the phosphorus from the pig, of which that made in Yorkshire contains a large proportion. Now, as the Northamptonshire ore contains less phosphorus than the Cleveland, there appears to be no reason why a very good steel

could not be produced from the former, and at a price which would command a very large sale indeed, considering the high price of Bessemer, owing, in a great measure, to the high royalty paid to the patentee. We understand that Mr. BUTLIN is directing his attention in the same direction as the gentlemen above named, so that the solution of a most important and valuable matter connected with the iron and steel trade of the kingdom is in a fair way of being arrived at. The actual value of such an invention can scarcely be estimated, but for rails in particular, as well as for other purposes, it would doubtless supersede the high-priced Bessemer. However, the introduction of such a successful process of conversion, from whatever quarter it may emanate, cannot but beneficially affect the iron manufacture of Northamptonshire, and which at present is but in its infancy. It is not, however, likely to remain so, for already new works and furnaces are about to be opened out, and which in course of a few years will change the present quiet agricultural district, from Wellingborough to Kettering and Market Harborough, into a gigantic hive of industry, the fires from numerous furnaces strangely contrasting with the existing pursuits of the sparse community. That change, indeed, may be said to have already commenced, for at the present time Messrs. HIPKINS and SONS, of the Swan Village Works, West Bromwich, are erecting some works close to those of Messrs. BUTLIN, and which are to be called the "Wellingborough Bar Iron Company." Portions of the plant and machinery are already on the ground, so that not only puddling-furnaces but rolling mills will soon be at work, largely increasing the consumption of the local iron. Not very far from the same place are the works of the Messrs. WILLIAMSON and Co., and who, during a comparatively short time have manufactured upwards of 12,000 tons of railway chairs from the Wellingborough iron.

One of the great advantages connected with the Northamptonshire ore is that it is obtained close to the surface, from 12 to 16 ft. thick, and in some instances giving upwards of 12,000 tons to the acre. Although it may be said that up to a somewhat recent period the ore of Northamptonshire has not been appreciated to the extent that it deserved, its value has of late been generally recognised, and it is now making rapid progress in the estimation of the iron makers in various parts of the kingdom. Such being the case, and from the energy and research of those interested in increasing the value of the mineral products of the county, there is evidently a glorious future in store for Northamptonshire, so far as relates to its iron and ironstone.

The Midland Railway will also be essentially benefited by the extension of the iron trade, and its traffic in the course of a short time will be very sensibly increased, more particularly to the North, where at present a very large quantity of the ore is forwarded, and from which, in return, the coal and coke necessary for smelting is sent.

THE EDUCATION OF OUR MINING POPULATION.

For many years past endeavours on the part of the Legislature and the owners of mines have been directed to the educating of those engaged in mining operations, but their efforts have been anything but successful so far. The last attempt in that direction was introduced in the Act 23 and 24 VIC., c. 151, which recites that after July 1, 1861, a boy above 10 years of age and under 12 can only be employed in a mine conditionally on the owner receiving a certificate from a competent schoolmaster that such boy could read and write, or that he had attended school for not less than three hours for two days in every week. At first the Act was tolerably well complied with, but for several years past in most colliery districts it has become a dead letter. Following in the same spirit, owners of mines have sought, by the establishing of schools and reading-rooms, to instruct their workpeople, but their success has been anything, as a rule, but encouraging. It is, however, gratifying to find, notwithstanding the comparative failure of legislative enactments and the exertions of owners of mines, that a new power, which gives every promise of success in promoting the intellectual status of our colliery population, has started somewhat unexpectedly into existence. The power to which we allude is that of the working colliers themselves. For the carrying out of such a very important object, we may state that on Monday last there was a large and influential gathering of the men at present employed at the unfortunate Oaks Colliery, and the widows and children of many of those at present entombed in the workings, for the purpose of inaugurating a movement, having for its object the establishment of a night-school, library, and reading-room, for the benefit of the adults and boys connected with the pit, as well as for those who have some claim through their connection with those who lost their lives by the explosion of 1866.

In opening the proceedings Mr. MINTO, the manager, said the movement was entirely initiated by the stewards and workmen who, as a commencement, subscribed no less than 217. amongst them. It was stated by Mr. MINTO and others that, for a great number of years, so high was the character of the Oaks workmen throughout the district that all measures in connection with the colliery body—not even excepting strikes—and having for their object the bettering of the condition of the miners generally, had their starting point through them; and whatever course they pursued was sure to be followed at nearly all the other collieries in the South Yorkshire district. Such being the case, there is every reason to believe that the new educational movement will spread far and wide, and take root, not only in Yorkshire but in many other mining districts throughout the country. It is a fact worthy of notice that the want of education is now fully impressed on the better class of our mining population, who find that in consequence of their deficiency they have been kept from rising, and occupying situations which are often filled by those having infinitely less practical knowledge than themselves.

One of the speakers at the meeting on Monday, Mr. BARMBY, a North Country bottom steward, dwelt in truly pathetic terms on the loss he and others had experienced when young from the want of the means of education. Thirty years ago, he remarked, there was very little chance of education for the collier boys, most of whom, like himself, were sent into the pit when little more than seven years of age, and who had to depend on what little learning they obtained at the Sunday School. All that, he said, was now changed, and the great object at present was to give every opportunity to lad to become good scholars and efficient workmen. Mr. BARMBY, we may say, is not alone in feeling the want of what is now so freely offered to all classes. There are men in the South Yorkshire district, who have by self-culture and self-denial raised themselves from the lowest to the highest position which any man can attain in connection with our collieries. It may be true that many of those men could not pass an ordinary Government competitive examination with success, but for practical knowledge of mining, and all that related to it, their opinion would be taken far before that of those who depended on education and limited experience alone, and who it was now the fashion to promote to governmental offices. Another of the speakers in his speech noticed the career of the late Mr. JOSEPH LOCKE, the eminent engineer, who was a companion of his at the time when they drove their carts together laden with coal through the streets of Barnsley. In after life, when both had attained prominent positions, Mr. LOCKE, he said, had told him that he traced his success in his profession to his having thoroughly mastered the science of numbers. As Barnsley claimed that gentleman as a townsman, the speaker urged with great force on those present to endeavour to imitate his example by education and self-culture, and the acquiring of a taste for more ennobling pursuits than the colliery body was generally credited with.

We believe that the movement thus initiated by the working class for educating their children and improving themselves will be looked forward to with considerable interest; and, as the Colliers' Union in South Yorkshire now numbers between 9000 and 10,000 members, the establishment of schools, reading-rooms, and libraries cannot but become more general than they are. Indeed, it may be said that there are some branches of education, such as the nature of gases, &c., which ought to be well understood by all persons working in mines, and a knowledge of which it is not too much to say might have been the means of preventing many serious and fatal accidents. In common with all others interested in mining and the safety and social progress of our mining population, we heartily wish the movement "God speed," and trust that the example of self-reliance exhibited by the workmen

at the Oaks Colliery will be successfully followed by other localities, to the present and future advantage of the working collier and his children, feeling assured that colliery owners will only be too glad to assist in every way they can in aiding such a noble work.

ON A NEW SYSTEM OF IRON AND STEEL-MAKING.

BY G. J. AND T. C. HINDE.

A great and rapid increase in the quantity of iron made per furnace has characterised the pig-iron manufacture of late years. The blast-engines have become more powerful, the hot-air apparatus more efficient, and the cubic capacity of the furnaces has been greatly enlarged. Standing on the top of one of the huge furnaces at Ferry Hill, 105 ft. in height, and turning out its 400 to 500 tons of pig-iron weekly, one can hardly help thinking that the limit of progress in respect of quantity has been reached. But has the science of the subject kept pace with the mechanical means employed? Can the blast-furnace manager pronounce with certainty what will be the product from any given mixture of ore, flux, and fuel; or is he still dependent on an actual trial in the furnace, making the best guess he can, and altering his proportions when he sees by the resulting iron and cinder that his previous quantities were not adapted to produce the desired quality of iron; and is the quality of pig-iron now made better than the ironmaster of 30 years ago would have produced from a similar sample of ores? Unfortunately, there is but one answer to these questions. The pig-iron of to-day, to say the least, is not better than that of 30 years ago, and the furnace manager has still to make the best guess he can, until he sees the results of his proportions some 36 hours afterwards, and then reaching the desired point after a more or less lucky series of adjustments. The mere existence of such a state of things as this is a great obstacle to any scientific progress. So long as the furnace manager can only produce any specific quality of iron by a series of actual trials, so long is he under the heaviest inducements, when he has succeeded in getting his furnace to the desired point, to keep it there, and to oppose any trials, experiments, or investigations which might either really result in altering the working of his furnace, or which he may imagine to have that tendency. Few of our readers outside the trade itself will be prepared to hear that a great industry of the country is carried on on such an unsatisfactory basis. Nevertheless, our description is strictly correct, and admits neither of contradiction nor exception.

The making of pig-iron from the blast-furnace is a huge chemical operation, the theory or *rationale* of which is but little understood; indeed, it is absolutely impossible that it should be understood by anyone not having a pretty good knowledge of metallurgical chemistry. It is to the want of this knowledge we attribute the little progress which the science of pig-iron making has made, in contrast with the immense strides which have distinguished the more mechanical departments of the business. The processes to be accomplished in the blast-furnace are these—the oxygen of the iron ore has to be removed, leaving the metallic iron; the metallic iron thus resulting from the removal of the oxygen from the oxide of iron, has to be alloyed with a certain proportion of carbon, to render it fusible, pure metallic iron being practically infusible; the earthy matter associated with the oxide of iron in the ore has to be brought in contact with some other material, with which it will readily combine at a high temperature, thus forming fusible cinder or slag. The separations and combinations to be effected in the production of pig-iron are then as follow:—1, the separation of the oxygen from the oxide of iron; 2, the combination of carbon with metallic iron; 3, the combination of the earthy matter associated with the ore with an appropriate flux, by which both become fusible. We will now examine in detail how each of these separate operations is effected, with a view to show what are the defects in the means employed, and endeavour to point out the methods by which those defects may be remedied. Firstly, as to the separation of the oxygen from the oxide of iron, the iron ore is generally charged into the furnace in lumps, just as it comes from the mine or the calcining kiln, no great regard being paid to the size, unless there happen to be some exceptionally large pieces, in which case they are usually roughly broken up with a sledge hammer. No chemical action, of course, takes place upon the iron ore until it has become sufficiently heated for its oxygen to combine with the carbonic oxide formed in the furnace from the carbon of the fuel and the oxygen of the blast. In the upper portion of the blast-furnace this carbonic oxide is largely mixed with carbonic acid, partly given off by the limestone and partly by the union of the oxygen of the iron ore with that portion of carbonic oxide by which the reduction of the iron ore is effected. This neutralising, or, indeed, antagonistic influence of the carbonic acid, is overcome by passing a large surplus of carbonic oxide through the furnace, and which, escaping at the top, forms the so-called waste gas, now commonly utilised under the boilers, or in the hot-air apparatus. This necessity of passing a quantity of carbonic oxide through the upper portion of the furnace largely in excess of the quantity which can actually combine with the oxygen of the iron ore, is accompanied with a large extra consumption of fuel. This loss of fuel in the present method being attributable to the unsuitability of a mixture of carbonic acid and carbonic oxide gases for the reduction of the ore, we arrive at our first condition of the true method of separating the oxygen from the oxide of iron—that it must be effected in an atmosphere of carbonic oxide only, and not of a mixture of carbonic acid and carbonic oxide. We have not alluded to the nitrogen gas, it being a necessary constituent of atmospheric air; it is, of course, present wherever combustion is carried on by means of atmospheric air, and is believed not to exercise any direct influence in the blast-furnace. As the separation of the oxygen from the oxide of iron has to be effected by the union of heated carbonic oxide with the oxygen of the ore, the next point for consideration is, under what conditions can we expose the iron ore to the action of the carbonic oxide so as to ensure the maximum amount of effect from that carbonic oxide—or, in other words, so as to effect the reduction of the iron ore with the least amount of fuel? In existing blast-furnaces the descending column of iron ore is met by the ascending column of gases, and is acted upon by the carbonic oxide, more or less rapidly, in proportion to the greater or less temperature of the carbonic oxide, and the greater or less degree in which the iron ore is porous or permeable to the gases. Much, therefore, depends on the mechanical structure of the ore, and the ease or difficulty of smelting operations as at present conducted, is in almost direct ratio with the porosity or the compactness of the ore; the Northamptonshire and Cleveland being examples of the first description, while the hard, compact, magnetic oxides, the compact specimens of Cumberland hematite, and forge or mill cinders, represent the class of materials more difficult to operate upon. But taking the most favourable specimens—say a lump of Northamptonshire or of Cleveland ore—the removal of the oxygen from the oxide of iron commencing at the outside, and gradually penetrating inwards, is a process requiring a very long exposure to the action of the carbonic oxide, the volume of which passing up through the furnace is necessarily enormously in excess of the amount actually required for the removal of the oxygen of the iron ore. Two modes of reducing the waste of fuel arising from this imperfect action of the carbonic oxide on the iron ore are now in use. The first by raising the temperature of the carbonic oxide to the highest attainable point by heating the blast to an extreme degree, and the other by lengthening the ascending column of carbonic oxide through which the descending column of ore must pass—that is to say, by increasing the height of the furnaces.

Where the character of the fuel and of the ores will permit either or both of these plans to be put in practice they result in a considerable economy of fuel, and we see the temperature of the blast raised in some instances so high as 1000° or 1200° Fahr., and two of the most recently-built furnaces in the North of England are, as we have before mentioned, 105 ft. high. But both these methods have their disadvantages. To raise the temperature of the furnace to an excessive degree, and thus attempt to make up for the insufficient way in which the iron ore is exposed to the action of the carbonic oxide by raising the carbonic oxide itself to an excessive temperature, lessens the waste of fuel, but the affinity of the carbonic oxide for oxygen becomes developed to such an intense degree that its reducing powers become not only sufficient to remove the oxygen from the oxide of iron, but also to remove the oxygen from the silica generally associated with all iron ores in greater or less quantities, and also to re-

duce other metals from their earthy bases. These, especially the silicon, alloying with the pig-iron, render it weak and brittle, becoming where much silicon is present what the workmen term "rotten." The disadvantages of very high furnaces are more of a mechanical description. From the great depth and consequent pressure of the column of materials they become so compressed in the furnace that much additional engine-power is required to force the blast into the furnace; the coke must all be of the hardest and strongest kind to enable it to "carry the burden," and any derangement resulting from wrong filling, variation in quality of materials, or other cause, is difficult to remedy, and becomes a matter of very serious loss.

We have already seen that the removal of the oxygen from the oxide of iron has to be effected by its exposure to the action of heated carbonic oxide, and we have shown how the result is arrived at in existing furnaces. It is, of course, evident that the more thoroughly we can bring each particle of the oxide of iron under the action of the carbonic oxide, the more rapidly and completely will the carbonic oxide remove the oxygen from the iron ore. The porous nature of Northamptonshire and Cleveland ores facilitates the penetration of the carbonic oxide gas: the close mechanical structure of the magnetic oxides, and of the hard compact samples of hematite ore, retards this penetration, hence the comparative ease with which the former, and difficulty with which the latter, are reduced.

When the chemist wishes to produce metallic iron from its oxide, he exposes the oxide in the most minute state of division to the action of the heated reducing gas, and the oxygen is removed in a few minutes. When he wishes to assay a sample of iron ore he pulverises and mixes his iron ore, charcoal, and flux, and half-an-hour's time is sufficient for the removal of the oxygen from the ore, the carbonisation of the iron and the combination of the flux with the earthy matter, thus producing a button of cast-iron, with its concomitant cinder or slag, doing on the small scale, in fact, precisely what the blast-furnace does on the large. But we need not dwell on this point. To anyone acquainted with the most elementary principles of chemistry it is known that the more closely and more intimately any two bodies can be brought into contact with each other the more rapid and complete will be their re-action upon each other.

The remark naturally arises that if the reduction of the iron ore would be so greatly facilitated by such a simple process as that of crushing or pulverising the ore, why has it not been already in operation? Doubtless it would have been, but for an insuperable mechanical difficulty. When iron ores in a pulverised condition are discharged into the blast-furnace the particles of iron ore fill up the interstices of the coke and limestone, and form one dense mass from top to bottom, through which it is impossible for the blast to penetrate. But this difficulty, insuperable in the present blast-furnace arrangements, simply proves those arrangements to be inadequate to a true solution of the problem, which is—in what manner can the iron ore be subjected to the action of carbonic oxide gas, so as to secure the most rapid and effectual removal of the oxygen from the oxide of iron. As already shown, this can only be effected by bringing the iron ore into a finely divided condition; hence our second deduction—that the iron ore must be crushed or pulverised.

[To be continued in next week's Journal.]

MINING, METALS, AND MINERALS—PATENT MATTERS.

BY MICHAEL HENRY,
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HENRY BUNNING, Jun., of New Cross, has specified a patent relating to apparatus for burning combustible liquids in furnaces. In order to burn creosote and other combustible liquids in furnaces, the patented places within the furnace a receiver, which is supplied with the liquid to be burnt by a pipe leading to a cistern above the level of the receiver, and this pipe has a stop-cock upon it, by means of which the quantity of liquid entering the receiver can be regulated. Within the receiver it is preferred to have a number of partitions, dividing its interior in such a manner as to form a zigzag passage through it; the liquid enters the zigzag passage, and after circulating therein, it issues as highly-heated vapour; this vapour passes into a pipe having a stop-cock or regulator upon it, and beyond the stop-cock or regulator the pipe is perforated, and through it the vapour issues into the furnace by numerous jets, and is consumed. This arrangement admits of the heat being entirely under control, as the passage of the vapour into the furnace can be arrested at any moment, or adjusted as the requirement of the moment may dictate.

MR. EDMUND RICHARD SOUTHBY, of Lanark, Scotland, has obtained a patent for separating paraffin from its solutions, and in apparatus therefor. His invention consists in cooling a solution of paraffin in a vessel of moderate depth, by preference closed and fitted with agitators and scrapers, or equivalent details, which keep the solution constantly stirred, and prevent the paraffin from adhering to the sides. By this means the paraffin is obtained in small, distinct, and very uniform crystals, which are very easily drained and pressed. When the cooling and crystallising has proceeded to any required extent the liquid is separated from the crystals by draining in bags, and pressing, or by any other well-known process.

JOHN ROBERTS and JABEZ MORGAN have specified a patent for joining metallic pipes. In joining metallic pipes, according to this invention, the ends to be joined are made flat, so that when they are pressed together with an india-rubber or other washer between them they make an air and water-tight joint. On the outside, and near the end of each pipe, a series of three or other number of projections are made, the outer sides—that is, the sides most distant from each other—being inclined in opposite directions. A detached collar or ring of metal is made of a size suitable to fit on the ends of the pipes to be joined, and having on its interior surface two series of projections, equal in number to those on the ends of the pipes. The one series of projections is at such a distance from the other series that when the ends of the two pipes are brought together the projections on the said ends of the pipes fit between them; on sliding the collar or ring on the end of the pipes it is turned into such a position that its projections are not presented to those on the pipes. It is then moved so as to bring it equally over the ends of the two pipes, and a motion of partial rotation is given to it.

THE NEW HAUPU ROCK DRILL.—In last week's Journal we gave the particulars of some recent experiments with the new Haupu drill at the Minera Lime Quarries, Wrexham; we are informed that the machines are now at work in several places, and that we shall shortly be furnished with the results arrived at, which, of course, we shall have pleasure in placing before our readers. We are also glad to learn that Messrs. Blanchard and McKeon hope to have one of their new machines at work at Falmouth, at the forthcoming annual meeting of the Miners' Association.

NEW TELL-TALE.—An ingenious and useful indicator for registering the revolutions of wheels, the number of strokes made by steam-engines, &c., has been invented by Mr. BATHIAS, and is in use gives very satisfactory results. The instrument consists of a simple system of cog-wheels enclosed in a case, measuring 6 in. x 4 in., and 3 in. deep. These wheels are put in motion by the movement of a handle or bar, and from their freedom from springs and simplicity of action cannot get out of order. The indicator can easily be adapted to all kinds of machinery, but their principal sale has hitherto been found amongst the railway companies, who have commenced to appreciate their value for ascertaining the distance travelled over by their rolling stock, and determining the quantity of fuel required for their locomotives, wear and tear, &c. As the indicators are made to register 999,999,999 revolutions, it will be easy to calculate the distance travelled by a vehicle, if the number indicated before and after making a journey and the circumference of the wheel be known. For mining and colliery operations it can be usefully employed for many purposes, not the least important perhaps in connection with collieries being the registration of the amount of work done with the winding gear, ropes, &c., so as to enable those in charge to judge when they require a thorough examination, whilst its price is not too high to permit of its very general use.

ANTI-SMOKY CHIMNEY STOVE.—Mr. THOS. NASH, jun., of Great Dover-road, Southwark, the well-known inventor and manufacturer of the copper-bound painters' brushes, has recently patented certain

Improvements in domestic stoves and grates, their object being the promotion of more perfect combustion, and the prevention of that too prevalent evil a smoky chimney, as it is commonly termed. Mr. Nash provides the back of the stove or grate with a hot-air chamber—that is, behind the grate back he has a hollow space or chamber, the air in which becomes heated by conduction from the back of the stove or grate when the back gets heated by the action of the ignited fuel therein. The aperture for the passage of the smoke or products of combustion is not as in ordinary stoves or grates a mere opening, allowing such smoke or products to pass directly up and up the chimney, but has a sort of hood or deflector, which brings the smoke or products of combustion within the action of the rarefaction of the air in the hot-air chamber, and by the power of the upward current thus created ensures the ascent of the smoke or products of smoke; downward currents being opposed by the rarefied air thus generated in the lower part of the chimney, in the hot-air chamber, and in the fire-place, as well as by the hood or deflector, preventing any sudden downward gush passing direct on to the ignited fuel, but causing it to be brought within the influence of the heated air in the hot-air chamber, and thereby destroyed.

REPORT FROM MONMOUTH AND SOUTH WALES.

SEPT. 17.—It is satisfactory to be able to report that the increased demand for rails which lately sprung up continues, Russia being the principal customer; and, as the shipping season to that country will shortly close, the mills are pretty well employed, so as to complete the contracts in hand, and ensure delivery this year. Whether it can be said that a permanent improvement has set in in the Iron Trade is open to doubt, for it is only right to add that many are of opinion that when the Russian season closes there will be another relapse to former inactivity. The low freights which prevail are an inducement to expedite the shipments, consequently the exports, although in excess of the corresponding period of last year, cannot be taken as an unquestionable proof that the trade has entered upon a prosperous career. On the other hand, there are those who think that when the Russian season closes continental requirements will have so increased as to keep the works quite as well employed as at present. Should this prediction prove correct, prospects at the commencement of next year cannot fail to be decidedly more cheerful than they have been for many years past. Prices have hardened a little, and this, probably, has caused the slight decrease which has taken place in the purchases of American buyers, who for the last three months have been the best customers to the makers of South Wales. Transactions with British India are extremely limited, and the last mail only brought a small addition to existing engagements. Home buyers continue to enter into transactions with caution, present prices not tempting them to purchase largely. Very few railway extensions are being carried on, therefore it is evident that the chief dependence must be placed on the permanent requirements of the existing companies. Bars are being exported to the continental markets, and for pigs there is an average sale. The Tin-Plate works are fairly employed, the demand for plates continuing tolerably good.

Steam Coal proprietors entertain the hope that the trade is now about to experience a revival, and already there is an increase of orders on the books. A difficulty, however, has to be encountered by merchants and shippers, owing to want of suitable tonnage for the most distant ports, hence the exports are hardly above the average. There is a slight increase in the demand from the French markets, but that cannot be said respecting the mail packet stations, at several of which a large quantity of the coal sent out during the time of the Abyssinian expedition still remains on hand. The House Coal trade is rather inactive.

Success has at last attended the praiseworthy enterprise of the proprietors of Dinas Colliery, Rhondda Valley, a fine vein (the 4-foot), 6 ft. 11 in. thick, having been struck at a depth of about 400 yards. The quality of the coal is excellent, and there is every prospect that the new discovery will prove a source of great wealth to the proprietors, and of prosperity to the district generally. Mr. Harrison, the manager, deserves a word of commendation for the skill he has displayed in carrying on the operations. The Dinas pits are the oldest in the Rhondda Valley.

The Monmouthshire Railway and Canal Company half-yearly meeting was held on Wednesday, Lord Tredegar in the chair. The directors' report, which recommended a dividend at the rate of 4 per cent. per annum, showed that 12,637l. had been received for the carriage of coal during the six months, and 7,802l. for iron, as compared with 14,525l. and 7,961l. respectively in the corresponding half of 1867.—Mr. Cartwright at some length criticised the policy of the directors. The purchase of the Brecon Canal he held to be a great mistake, and then allowing the old Rhymney line to pass into the hands of another company was a fatal error. He also opposed the proposed subscription to the Alexandra Docks. Mr. Batchelor commented on the conduct of Mr. Gratrex, a director, claiming 5,000l. for his interest in a tramway, which had cost him two years ago only 100l. Mr. Gratrex explained that his solicitor made the claim without his knowledge, and he and since agreed to leave the matter entirely in the hands of his co-directors. Mr. Tuttillings said that the suspense account was an unsatisfactory item, and another shareholder urged the closing of the capital account.—Mr. Powell, in reply to Mr. Cartwright, said the company could buy the old Rumney now if they desired it.—Mr. Batchelor, Mr. Phillips, and others, supported the proposed subscription towards the Alexandra Dock, as it was of the highest importance to the Monmouthshire Company that increased dock accommodation should be provided.—The report was adopted, and the dividend recommended declared. The proposed subscription of 20,000l. towards the Alexandra Dock was confirmed almost unanimously.

The arrivals at Swansea include—the Henry Ranking, from Husasco, with 70 tons of silver ore and 406 tons of copper regulus, for H. Bath and Son; Asia, from Sundewall, with 629 barks of timber (fir) and 1187 deals, to order; Alma, from Quebec, with a cargo of timber, for Richardson Brothers; Fanny, from Tilt Cove, with 490 tons of copper ore, for H. Bath and Son; James, from Buctoe, with 5673 pieces of deals and ends, for Richardsons, Power, and Co.; Fassfern, from Antwerp, with 170 tons of iron ore, for J. D. Jones; Sprite, from Santander, with 220 tons of iron ore, to order; Marie Zoo, from Bilboa, with 135 tons of zinc ore and 8 tons of copper ore, to order.

The sale of the Blaen Cefn COLLIERY property, which is to be effected in London, by Messrs. HUMBERT and COX, on Wednesday next, is looked forward to with much interest by those connected with the locality, it being generally felt that the property offers an opening for the establishment of a very lucrative business, and that its energetic working will be of great local advantage from the large amount of employment which it will give. The property contains the well-known Mynddyswyn vein of house coal. The history of this Mynddyswyn seam is particularly interesting—it was first discovered about the middle of the last century, and has since been proved to extend beneath the entire Blaen Cefn estate without a fault, and to be of the thickness of 6 feet throughout, so that, calculating the yield at 1000 tons per foot of coal per acre, and the profit at only 1s. per ton, this single seam would give nearly 250,000l. profit. In order to work the vein to the greatest advantage, it has been wrought from three distinct points—the whole of the coal being workable by levels from the side of the mountain, sinking is altogether unnecessary—and these workings have since been known as the Blaen Cwm, Blaen Cefn, and Blaen Cefn Issa Collieries. When the works were first opened the only means of getting a market for the coal was by sending it in sacks on mule-back to the neighbouring towns, and it was not until the property passed into the hands of the late Mr. Thomas Powell (who opened a level at Blaen Cefn, and made a communication with the Monmouthshire Canal and the Crumlin and Newport tramway, by constructing an incline plane) that the Blaen Cefn coal acquired any celebrity. But the quality of the fuel being undoubtedly good, it soon acquired a high reputation in the several Irish ports to which Mr. Powell shipped it.

The Mynddyswyn vein yielded a large annual income to its fortunate proprietor for many years, yet nearly one-half of the seam, even in the existing workings, remains untouched—the upper half being, in fact, the only part from which the coal has been taken. Throughout the district the Mynddyswyn vein consists of two distinct strata, more or less remote from each other, the parting varying from a few inches to several feet; the upper stratum was about $\frac{3}{4}$ feet thick, and the lower one is about $\frac{1}{2}$ feet. That the working of this lower seam will require some engineering skill is beyond question, but there are certainly no such obstacles as will prevent its profitable development. It is not alone the Mynddyswyn vein upon which the success of those who undertake the development of the property would depend, for both coal and ironstone, of excellent quality and in ample quantity (the coal seams, for example, varying from 2 ft. to 9 ft. in thickness) exist below it. The Cwmstillery red-ash coal—the first important vein below the Mynddyswyn—is found cropping out in many places on the adjacent lands to the east, and which on the western side has been discovered in a pit near the Union Foundry, at Llanllithel, at the exact depth previously calculated. All the inferior seams of coal, and the different seams, layers, or balls of limestone, have been proved by actual workings in a circuit round the property commencing at Blaenavon, and continued through the Varteg, the lands of the British Company of Pentwyn and Golyos, of the Pontypridd Company, of Cwmbran, Risca, Abercarn, and thence upwards to Nant-y-Glo. The Blaen Cefn property is situated in an unusually advantageous position both for the shipment of the produce and for transporting it by railway; and, if it falls into the hands of an influential capitalist or company, there can be no doubt that its acquisition will prove alike beneficial to its new owners and to the colliers of the district.

TRADE OF THE SOUTH WALES PORTS.—The following are the returns of the quantity of coal shipped during the month of August and the corresponding month of last year:—

| EXPORTS. | | AUGUST, 1868. | | AUGUST, 1867. | |
|--|---------------|---------------|---------------|---------------|--|
| Cardiff | Tons 183,902 | | Tons 188,336 | | |
| Newport | 28,913 | | 28,585 | | |
| Swansea | 48,541 | | 45,681 | | |
| Llanelli | 9,275 | | 15,462 | | |
| SHIPMENTS COASTWISE. | AUGUST, 1868. | | AUGUST, 1867. | | |
| Cardiff | Tons 77,559 | | Tons 84,429 | | |
| Newport | 65,170 | | 80,984 | | |
| Swansea | 21,004 | | 32,639 | | |
| Llanelli | 12,668 | | 23,884 | | |
| Newport also exported 14,721 tons iron; Cardiff, 11,146 tons iron and 234 tons | | | | | |

patent fuel; and Swansea, 2151 tons iron and 5213 tons patent fuel. The Russian and American markets were the principal customers for iron.

DEATH OF MR. G. W. LENOX.—We have to announce the death of Mr. George William Lenox, of Ynys-Yngharad, Glamorganshire, in his 70th year. Deceased was a partner in the firm of Brown, Lenox, and Co., chain and cable manufacturers, whose extensive works are at Pontypridd, and it may be truly said that as an employer he was universally beloved by his workpeople.

REPORT FROM NORTHUMBERLAND AND DURHAM.

SEPT. 17.—There is not much change to notice in the Coal and Coke Trades; dullness is still complained of in some quarters, although the general state of trade certainly is much improved. At Jarrow, one of the principal seats of the iron manufacture, there is a great improvement, and renewed activity is apparent in most branches of trade on the Tyne.

On Saturday the Marquis of Bute attained his majority, and the occasion was marked by festivity and rejoicing greater than that displayed at any "coming of age" in Great Britain for many years past. The colliers, cottagers, farmers, and agents belonging to Gateshead, Burnopfield, Birtley, Dinsdale, and Clow Dene, in Durham, celebrated it in a hearty and most admirable manner. To signalise the event, a new pit was opened out, at a depth of 34 fms. from the surface, to the low seam, from which will be obtained some of the famous Brockwell seam. The first draw took place on Saturday morning, under the superintendence of Mr. John Chambers, the skillful engineer, whose father and grandfather have preceded him in office on the estate, and whose joint service has extended over a period of 130 years. The new working will be called the Bute Pit. The estates belonging to the Marquis of Bute in Durham county alone amount to 2500 acres. It is stated that the Marquis's income is 1000l. a-day. After the dinner, Mr. Wardell proposed the toast of the day—"The Health of the Marquis of Bute," and, in doing so, eulogised in strong terms the character of the late Marquis, and expressed a hope that the present Marquis would follow in his footsteps. The Rev. John Mathwin proposed "The Health of the Agents and Workmen of the Colliery," and praised the conduct and character of the workmen, who, he said, are remarkable for industry, honesty, and also charity when required. A more settled and industrious race of miners, indeed, cannot be found than those in the district referred to. After the dinner a ball took place, and at dusk the long avenue was illuminated, fireworks enlivened the scene, and a large bonfire was lighted on Pontop Pike, the highest hill in the county of Durham.

Mr. Jackito Nomura, a Japanese, who came to the North a year or two ago, and placed himself under the instruction of Mr. R. Simpson, viewer to the Townley Coal Company, in order that he might acquire a practical knowledge of coal mining, has left England for Japan.

ANGLO-DANISH TELEGRAPH CABLE.—This important undertaking was completed during last week, so that a communication is now open with North-Eastern Europe and this country by a route much more direct than any previously open. The cable commences at Newbiggin, on the Northumberland coast, and passes over the bed of the German Ocean to Sonderborg, near Rinkenborg. The project of direct telegraph communication between Great Britain and the northern countries of Europe—Sweden, Denmark, and Norway—has long been before the public, and various routes have been proposed. The task of constructing the cable was entrusted to Messrs. R. S. Newall and Co., of Gateshead. The diameter of the shore end of the cable was fixed at 1½ in., and for the deep water a much less diameter is used. The weight is 3 tons per mile at mid-sea, and the shore end is 6 tons per mile, and the insulation of the core has been effected by means of India-rubber, and this is the first instance in which this substance has been applied to a wire of such great extent. Hitherto it has been thought that nothing could be accomplished without gutta percha, but the successful manner in which the present line has stood the most delicate tests proves that another great scientific triumph has been accomplished.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

SEPT. 17.—The Iron Trade really presents no change; but as its position just now is of considerable importance it may be worth while to re-state the plain facts. Let it be, then, remembered that we have had a very long period of dullness, followed by many months of great depression, during which many ironmasters failed, and many works were closed, and so the possible make greatly reduced. This long-continued want of orders led to prices being officially reduced, and with them wages, and from this step dates a recovery in the demand. But before the reduction was carried out there was a strike, and after that was over the excessive heat of the weather considerably curtailed the make of iron. The improvement has, therefore, followed a diminished production and a long-protracted depression, during which, as orders could be completed quickly, buyers kept stocks low. Past experience has shown that when stocks are so reduced, and it is found that orders cannot be at once executed, merchants begin to apprehend difficulty in supplying their customers, and even a possible advance in prices, and so order more freely; but this may be temporary. The actual results are that the works, which early in July were hardly going half-time, are now generally pretty well employed, though all the works certainly are not. Many ironmasters were forced to accept very low prices to keep on at all. They are now creeping up a little, and men who can pay ready money, and, consequently, buy on the best terms, find they can hardly get iron as cheap as before. The orders are, however, as yet far from being sufficient to make the works really busy: there are few works with many in hand, and any advance in price has been from a very low figure, and has been of slight account. Again we are getting near the end of the shipping season, when there is some pressure to execute orders, and after which there is often a degree of slackness. The result is that the trade, after a long period of prostration, is recovering steadily on lower rates being accepted, and we hope and expect the improvement will continue; but there is no ground for entertaining the idea of an early advance in prices. Let us see the winter over, and then if by March there is a continued influx of orders, and a fair prospect, the question of prices may be mooted. Meanwhile, it is worthy of consideration, or rather re-consideration, what benefit arises from these fixtures of prices by a few firms, and whether the discussion the practice extends, taken in conjunction with the general disregard of the list so agreed upon, does not constitute a reason for discontinuing what has really become obsolete. Pig-Iron is in better demand, and vendors are asking a slight advance. A few small buyers are giving it, but most have made forward contracts, and are bidding their time. An advance of 5s. per ton in pig-iron would soon cause a number of furnaces to be blown in.

The prosecution for the non-consumption of smoke in Hanley has ended in the dismissal of the cases, on account of a formal defect in the proceedings; but Mr. Davis, the stipendiary magistrate, in giving his decision on Monday, made a general statement as to the application of the Act of considerable importance. He observed:—Any chimney (except that of a private dwelling house) sending forth black smoke in such quantity as to be a nuisance constituted such an offence as might be suppressed, and he thought it no answer whatever to such a description of nuisances to say that the nature of the manufacture or trade did not admit of its suppression. Once established that black smoke issued in such a quantity as to be a nuisance there was no possible escape, as it seemed, to him, for the suppression of the nuisance, even if it involved as a necessary consequence the suppression of any manufacture or trade. This was no new principle. Apart from and independently of the Nuisance Removal Acts, it was clearly no answer to an indictment, or action, or injunction of a nuisance to say, "Very true; this may be a nuisance to the public or to a private person, but I cannot carry on my manufacture or trade unless I am allowed to do what is complained of." Mr. Davis believed the Legislature in 1866 was satisfied that to send forth black smoke in such quantities as to be a nuisance was not essential to carrying on any manufacture or trade, and, therefore, that no unreasonable restriction was imposed. The effect of the Act appeared to him to be merely to give a new mode of suppressing the nuisance, which before the passing of the Sanitary Act was, and is still, a subject either of indictment, or injunction, or action, according to circumstances. Quite independent of the above provisions was the suppressable nuisance of a fire-place or furnace not consuming its smoke. Under the 19th section of the Sanitary Act, 1866, any fire-place used for steam engines, or in any mill, or any manufacture, or trade process whatever, which did not, as far as practicable, consume the smoke, was declared to be a nuisance. It was no answer to a nuisance of this description to say that no black smoke at all came from the fire-place or furnace, neither was it any answer to say that the smoke sent forth was not a nuisance, for the Legislature had made the fire-place or furnace a nuisance. There was a proviso allowing magistrates to say that there was no nuisance if they were satisfied that the fire-place or furnace was constructed in such a manner as to consume smoke as far as practicable, having regard to the nature of the manufacture or trade; and that such fire-place or furnace had been carefully attended to by the person in charge. It was no answer to show one thing without the other. The construction, without the attention, was not sufficient; nor was careful attention without the construction. It is pretty plain that Mr. Davis intends the Act to be a reality, and then once this is seen the difficulties will soon be surmounted. Smoke can be consumed, but it never will until authority says it must, and on the necessary pressure.

A large party of members and friends of the Mine Agents' Association of South Staffordshire and East Worcestershire visited the Pendlebury Colliery, near Manchester, on Monday, being received by the proprietors of the colliery, Messrs. Andrew Knowles and Son, and shown all over the works and the mines, which extend to the depth of 520 yards at the bottom of the shaft, that being increased to 720 yards at the extremity of the engine-planes, to which the visitors descended, and where they met with a degree of warmth of another

and hardly so pleasant a nature as that accorded them by the owners on their arrival, for at that depth the neighbourhood of plutonic regions is vividly suggested. The next day they went to the Leeds Exhibition. It is said that all societies rather tend to amusement than dry work, but as the days shorten we may expect that the association will take up the discussion of practical questions connected with mining, many of which demand careful consideration.

Last week satisfaction was expressed at the recent freedom from fatal mining accidents. No serious case has since occurred, yet there are five deaths to record—four in the North and one in the South Staffordshire district. At the British Iron Company's pit, near Bradley Heath, yesterday week, William James, a middle-aged man, with a wife and four children, was taking out a spurn, when a heavy piece of coal fell from the roof, and caused his death the next day.—Two men were killed on Tuesday at Newchapel Colliery, near Tunstall, belonging to Mr. Robert Heath, under circumstances that show how indifferent danger colliers become. They fired two fuses for the purpose of igniting shot placed in the mine, and to get out of the way gave the signal to be raised. They were being drawn up, when one of them shouted "Stop," and then said "Smash down again." Accordingly they were again lowered, and, having reached the bottom, they once more signalled to be raised, and just at that moment the two shots went off, and when they were got out they were dead. It was supposed at the inquest that one of the fuses had gone out, and that the men descended to re-light it, though the other was burning. A verdict of "Accidental Death" was returned.—A boy 13 years old was killed at the Silverdale Company's Collieries, in North Staffordshire, on Saturday, by being accidentally struck in the abdomen by a moving wagon which he was trying to catch at. He died the next day. He was employed to drive a pony which drew the wagon. An inquest was held on Saturday as to the death of a man named Sampson Sherratt, who was employed at the Fox Green Colliery, in North Staffordshire, and who as far back as Aug. 6 was hurt by being jammed between two moving wagons, and the result was his death. The ordinary verdict was returned.

Last week the banks of that portion of the Shropshire Union Canal which runs across the Wixball Moss, near Whitechurch, suddenly burst, deluging the land for a considerable distance around. Relays of workmen have been employed since the accident, and have now made good the damage, the traffic to a considerable extent being resumed.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

SEPT. 17.—There is very little information to be dealt out with regard to the Iron and Coal Trade of Derbyshire different to what has been given during the last two or three weeks. With regard to the former, no material improvement has taken place, so that most of the large establishments are only kept moderately going. Still, as most of our iron-making districts are becoming active, there is every prospect that the makers in this locality, who are in a position to compete with any other part of the kingdom, will also be more fully employed. There is, therefore, a prevailing feeling that the worst has been reached, and already, in fact, we hear of improvements in some places, but so far not of much import, except to show the direction in which things are tending. There is an improving business doing in coal, and the tonnage going to London from Clay Cross and other places is on the increase, and fast assuming the proportions which are usual at this time of the year, although the falling off during the last four or five months was of a very marked character. The position of Derbyshire, however, is such that it must always ensure a great deal of the trade to London and the South, whilst the many new collieries being opened out on the Midland system, more particularly on the route of the branch between Sheffield and Chesterfield, give promise of a very large addition to the present tonnage going from that county, and will be the means of providing employment for many hundred additional hands. From the southern district, including Gresley, Swadlincote, and Ashby, there is also rather more doing, a considerable quantity of the coal going westward, by way of Tewkesbury and Cheltenham. Gascoal is also in rather better request, whilst the demand for coke continues very fair, both for the works in the district and for exportation to other iron-making localities.

There is no change in the state of affairs in Sheffield, most of the heavy steel branches being favourably off, whilst the lighter ones are far from active, particularly with regard to the inferior class of goods. The heavy armour plate trade promises to be very active, and a large quantity is now being turned out. At Rotherham there has been considerable improvement at the various works, so that the mills are kept well going, and the puddlers and other workmen

everything different from what it is, and their interest is the interest of society. If you are returned it will give me more pleasure than any other event of the election. You will stand all but alone in the House of Commons, and therefore you will be able to do little or nothing, but it will be the first note of preparation for the coming struggle, and everything must have a beginning. Those who begin do a great work, and deserve to be remembered.—E. S. BEESLEY.

What the "workmen's own interest" is, which McDonald is to help to bring about, by making a "beginning," is not expressed, if it is even known either to the learned professor or his *confere*.

Shipbuilding is getting somewhat quieter, but the amount of work is not by any means becoming diminished.

A new fire-arm was tried here, in a shooting gallery, on Tuesday, with complete success. This gun is the invention of Mr. Samuel Bash, patent safe maker, and seems destined to effect a revolution among the rifles at present in use—either Snider, Needle, Chassepot, or other gun. The rifles specified can only be fired on an average 10 times per minute, with the necessity of being cleaned after a few minutes' firing. The present invention, however, as proved to the satisfaction of those present, attained the extraordinary number of 28 shots per minute—about three times quicker than any known; but as the cartridges were not of professional manufacture, it is anticipated that 30 shots, or upwards, may yet be attained. In this invention there is no fouling, and the gun may be fired ever so often without cleaning, the cartridges dropping down at the breech after each shot, and they again may be filled and used some six or eight times afterwards, before being rendered useless. The piece, it is stated—although the trial range was limited—will carry as far as any other now in use. In the event of a soldier losing his fingers, the rifle, which is fired in two different ways, can still be operated on, for further service, by the palm of the hand. Mr. Bash, the inventor, who is a Berliner, 22 years of age, has been about one year perfecting his invention: the piece used was of his own construction, and, until he gets it patented, the details must remain a secret. However, it may be mentioned that it is simpler than any now in use, and, in consequence, can be fabricated cheaper than either Chassepot, Snider, or the Needle. This gun only necessitates two movements to load and fire, while any other known rifle requires seven or eight. The invention is likely to attract immediate attention.

PRELIMINARY PROSPECTUS.

CWM DWYFOR COPPER MINE COMPANY (LIMITED), NORTH WALES.

Capital £10,000, in 10,000 shares of £1 each,

Fully paid-up on allotment.

BANKERS,

METROPOLITAN BANK, LONDON.

OFFICES,—9, SEGONTIUM TERRACE, CARNARVON.

This company is being formed for the purpose of working the valuable copper lodes and other mineral veins in the extensive property of the New Prince of Wales Slate Company, situate in the parish of Llanrhangel-y-Pennant, in the county of Carnarvon. This mineral property possesses advantages of an unusual character, being situated on the slope of a mountain, where the veins can be worked from 290 to 300 yards deep by levels alone. The ore, a yellow sulphuret of copper, is of great richness and purity. A sample assayed by Messrs. Claudet and Co. produced nearly 19 per cent. fine copper, being about two times the average produce of Cornish copper ores. There is also, in a cross lode, a vein of silver-lead, which is believed to be of great value. The enduring character of these mineral veins is proved in the adjoining mine, the Drws-y-Coed, the oldest mine in Wales, and which is still yielding a large amount of copper from a great depth below the valley, having been gradually worked down from the top of the mountain.

The copper lodes in Cwm Dwyfor were originally worked by common miners, who realised good profits from their working into the lodes at surface without tunnels, or the expenditure of any capital whatever. If properly worked by levels there is no doubt of large returns of copper, and corresponding profits. The advantages of working veins so rich in copper as these, without the drawback of expensive machinery, are very great, and can seldom be obtained.

The great cross-course of the country, which is believed to occasion all the deposits of copper in the lodes intersected by it, traverses this property. The report of Mr. Thomas Collyer, appended hereto, will confirm the foregoing statement.

The company obtain the lease of these mineral veins for 30 years, and the use of the water, and abundant land for all purposes for about a mile in extent, for the sum of £5000, and a royalty of one-fifteenth of the produce. The purchase-money being so moderate, and the shares so limited in number and amount, and without any further liability, it may be reasonably expected that as soon as the returns demonstrate the fact of assured profits that the nominal value will be doubled or trebled. The Great Laxey Lead and Copper Mine, at a cost of £4 per share on 15,000 shares, is now saleable at £17 to £18 per share.

Applications for shares may be made, by letter, addressed to Mr. THOMAS HARVEY, 9, Segontium-terrace, Carnarvon.

REPORT.

Bangor Slate Quarries, Sept. 8.—This mine is situated in the parish of Llanrhangel-y-Pennant, in the county of Carnarvon, North Wales. The lodes are parallel with, and adjoining, the celebrated Drws-y-Coed Mine, the oldest copper mine in Wales now in work, and which is said to have been first worked more than two centuries ago. The bearing of the lodes is east and west, and abutting against the main cross-course of the country, which can be traced to the north of Snowdon, and southward to the sea, near Criccieth, a distance of about 12 miles. The lodes are imbedded in the congenital strata generally classed as the Cambrian, well known as being so productive for copper in the locality, and situated on the slope of the mountain, forming an angle of about 30°, averaging, where opened, over 2 yards in breadth, carrying two well-defined walls, and from their situation can be worked to the depth of 200 yards from levels alone. The length of the first level, of 200 yards, would give depth of 100 yards. The second level, of 300 yards, would give 100 yards more: total, 200 yards. For many years these lodes were worked by common miners, for their own profit, who had to raise and dress the ore, and carry the produce on their backs for miles, out of which they realised good livings. The ore is yellow sulphuret of copper, of high percentage, averaging at least from 10 to 12 per cent. for fine copper. A moderate amount expended in the opening of this mine, which would be chiefly for labour, would, in my opinion, produce a good percentage for the capital invested, as the only machinery required would be for inclines, tramways, and a crusher for the ore. At present there is a railway to within about 3½ miles of the mine, and likely to be extended to within a mile, by which the ore can be conveyed to the shipping port. From my experience of copper mining in Wales, I have no hesitation in stating that I consider this a proper and safe investment for capitalists, if fairly opened, and worked with economy, as no sinking or pumping is required, there being an abundance of water on the grant for washing and dressing the ore.—THOMAS COLLYER.

WEST ST. IVES CONSOLIDATED TIN MINING COMPANY (LIMITED).

Capital £10,000, in 10,000 shares of £1 each.

Deposit, 5s. per share on application, 5s. on allotment, 5s. in three months, and 5s. in six months after allotment.

Shares may be paid up in full, and 5 per cent. interest will be allowed on calls paid in advance. Share warrants for fully paid-up shares will be issued, payable to bearer, which will pass from hand to hand without transfer. According to the Companies Act, 1867, the names of the holders of such warrant shares need not be registered.

If no allotment be made, the deposit money will be returned in full.

DIRECTORS.

WM. ALDRED, Esq. (Messrs. Aldred and Maynes, Machinists), Manchester. JACOB HARRISON, Esq., 2, De Grey Terrace, Leeds (Chairman of the Yorkshire Lead Mining Company). BENJAMIN MORTON, Esq., Manufacturer, Linthwaite, near Huddersfield. JAMES ROBERTS, Esq., Surgeon, Golcar, near Huddersfield. THOS. STYRING, Esq., Huddersfield. JOHN W. WILLIAMS, Esq., Manchester and Southport.

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The ALLIANCE BANK (Limited), LONDON; and KING STREET, MANCHESTER; and its other Branches.

SOLICITORS.

MESSRS. MARSLAND AND ADDLESHAW, 67, King-street, Manchester.

AUDITOR.

MR. J. A. BURNE, Accountant, 57, Princess-street, Manchester. MANAGING CAPTAIN.—CAPT. JOHN NANCARROW.

PURSER.—J. M. KERNICK, Esq., J.P., St. Ives.

SECRETARY.—MR. THOMAS ALDRED.

OFFICES,—28, PALL MALL, MANCHESTER.

MESSRS. HANNAN AND CO., of 449, STRAND, LONDON; and ROYAL INSURANCE BUILDINGS, MANCHESTER, beg to recommend the above undertaking to the notice of their clients and others.

Full particulars can be had on application to either of their offices.

BIRMINGHAM FINANCIAL COMPANY (LIMITED), OFFICES,—WATERLOO STREET, BIRMINGHAM.

CAPITAL.—HALF A MILLION,

Reserve fund, 12,000.

ADVANCES made upon approved real and other securities.

DEFERRED PAYMENTS on Wagon Leases and other contracts purchased or advances made thereon.

HENRY ALLBUTT, Secretary.

ESTABLISHED 1844.

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101, CHEAPSIDE, LONDON, E.C.

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The profits applied—first, in extinguishing the premiums AT A GIVEN DATE, and afterwards in making the policy PAYABLE DURING LIFE; this important advantage being secured without the payment of any additional premium.

ANDREW FRANCIS, Secretary.

EXTENSIVE AND VALUABLE MINERAL PROPERTY, MONMOUTHSHIRE.

MESSRS. HUMBERT AND COX are favoured with instructions from the proprietors to SELL, BY AUCTION, at the New Auction Mart, London, on Wednesday, the 23d day of September, 1868, at Two o'clock, in One Lot, the **VALUABLE MINERALS** in and under 800 acres, comprising—

COAL, IRONSTONE, LIMESTONE, FIRE-CLAY, &c.

Situate in the parishes of LLANHILLETH and TREVETHIN, about a mile from the Aberbeeg Junction, and half a mile from the Llanbilleth Station on the Western Valleys branch of the Monmouthshire Railway, and about four miles from Pontypool; together with the SURFACE, comprising about 700 acres of unenclosed mountain pasture, and an enclosed FARM of 97 acres, called Blaen Cuffin.

May be viewed by applications to Mr. THOS. HALL, the tenant, at Blaen Cuffin, and full particulars may be had at the Auction Mart; of Messrs. TAYLOR and SON, solicitors, 3, Field-court, Gray's Inn, London; of Messrs. HUNTER, GAWKIN, and HUNTER, 9, New-square, Lincoln's Inn, London; and of Messrs. HUMBERT and COX, estate agents and surveyors, 88, St. James's-street, London, S.W.

VALUABLE COLLIERIES AND IRONWORKS,

Situate near SWANSEA and NEATH, called

THE DYLAIS COAL AND IRONWORKS.

MESSRS. BARNARD, THOMAS, AND CO., WILL SELL, BY AUCTION, at the Mackworth Arms Hotel, Swansea, on Saturday, the 26th day of September, 1868, at One for Two o'clock in the afternoon, subject to such conditions as shall be then and there produced (unless previously disposed of by private contract, of which due notice will be given), **ALL THOSE VALUABLE COAL AND IRON WORKS**, known as

THE DYLAIS COAL AND IRON WORKS,

Situate near the towns of SWANSEA and NEATH.

The works are situated at the head of the Dyals Valley, partly in Glamorgan-shire and partly in Breconshire, and form an area of 1000 acres in a ring fence. The Onllwyn estate (consisting nearly of 700 acres out of the 1000 acres), comprises the section of the Upper Four Feet Coal, the Eighteen Feet, the Nine Feet, the Lower Four Feet, and other veins, and is held for a term of 56 years from the 1st day of January, 1864; and the Rhayfoddu Cern-yr-Erw and Castell Coch estate (consisting of the remaining 300 acres), is held for a term of 42 years, from the 24th June, 1864, and the royalties under both leases are low, as well as the dead rent.

There are two well-lined blast-furnaces, with six hot-air ovens; powerful blast-engines; five excellent boilers, with chimney-stack, &c., complete; foundry fittings, blacksmiths' and carpenters' shops, offices, storehouses, manager's house, and about 50 workmen's houses.

The property is admirably adapted for the erection of tin-plate works.

There are also two bull-dog kilns, mortar mill in shed, tank-house, supporting a large cast-iron tank (into which water is pumped from a well to supply the whole water service), and containing pumping and blowing engines, the latter blowing refinery and charcoal furnace (these engines supplied from a large double-flued boiler), extensive mechanics' and smiths' shops, fitted and supplied with vertical engine and boiler, storehouses, stables, and offices, forming a handsome frontage in King-street. Drainage perfect.

The greater portion of the machinery, plant, and buildings is entirely new, and the remainder has only been a short time in work, and it is all of the newest and best construction, capable of turning out easily 600 tons per week.

Railways laid through all parts of the works.

A good stock of puddled bars (old rails, &c.) on the ground, which may be taken at a valuation.

Apply to BATESON, ROBINSON, and MORRIS, Solicitors, Castle-street, Liverpool.

TO BE LET—MINES IN CARDIGANSHIRE.

NANT-Y-CRIA AND DYFFRYN CASTELL. THE COMMISSIONER OF WOODS, &c., in charge of HER MAJESTY'S LAND REVENUES IN WALES, is prepared to RECEIVE APPLICATIONS for LEASES of the NANT-Y-CRIA AND DYFFRYN CASTELL MINE SETTS, which are situate in the parish of LLANBADARFAWR, county CARDIGAN.

The DYFFRYN CASTELL MINE is situate in the valley of the River Castell, about two miles from Ponterwyd. It is about fourteen miles from the Port and Railway Station of Aberystwith, about eleven miles from the Strata Florida Station on the Manchester and Milford Railway, and about fifteen miles from the Llanidloes Station on the Cambrian and Mid-Wales Railways.

The NANT-Y-CRIA MINE SETT adjoins that of Dyffryn Castell, and the mine works are about two miles south-west from those of the Dyffryn Castell Mine.

Applications should be addressed to "The Hon. JAMES K. HOWARD, Office of Woods, &c., Whitehall-place, London, S.W." Applications for each set should be separate, and each application must be accompanied by a remittance of £s. to Mr. W. C. HIGGINS, the Receiver-General at the Office of Woods, to cover the cost of the plan, &c.

IRONWORKS TO BE LET.

TO BE LET, with immediate possession, on LEASE, or otherwise, with option of purchase, the EXTENSIVE WORKS, lately the property of the

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These WORKS stand upon Nine Acres of Land, enclosed, of which the greater part is covered, and comprise PLATE MILL, large BEAM and BAR MILL, MERCHANT MILL, SHEET MILL, small MERCHANT GUIDE and HOOP MILL, FORGE, TWENTY-SEVEN PUDDLING MILL, and BALL FURNACES, FOURTEEN BOILERS, TWO DONKEY ENGINES, TWO powerful coupled horizontal and TWO vertical ENGINES, driving various trains of rolls; revero spans; guillotine, bar, and cropping SHEARS (each with engine); chimney 150 feet high, with flues all made thereto. The above are all covered by five spans of substantial slated, wood, and iron roofing.

There are also two bull-dog kilns, mortar mill in shed, tank-house, supporting a large cast-iron tank (into which water is pumped from a well to supply the whole water service), and containing pumping and blowing engines, the latter blowing refinery and charcoal furnace (these engines supplied from a large double-flued boiler), extensive mechanics' and smiths' shops, fitted and supplied with vertical engine and boiler, storehouses, stables, and offices, forming a handsome frontage in King-street. Drainage perfect.

The greater portion of the machinery, plant, and buildings is entirely new, and the remainder has only been a short time in work, and it is all of the newest and best construction, capable of turning out easily 600 tons per week.

Railways laid through all parts of the works.

A good stock of puddled bars (old rails, &c.) on the ground, which may be taken at a valuation.

Apply to BATESON, ROBINSON, and MORRIS, Solicitors, Castle-street, Liverpool.

TO BE LET, THE ANTIMONY MINES OF GLENDINNING, near LANGHOLM, the property of Sir FREDERIC JOHN WILLIAM JOHN STONE, of Westerhall, Baronet. The works have not been in operation since 1799, but they have just been carefully reopened, and now are let for examination by parties desirous to carry them on; the distance is about twelve miles from Langholm Station of the North British Railway, which gives ready access to London, Liverpool, and other markets. Canonbie Colliery is on the line of railway, where the price of coal is moderate, or it can be had at Langholm Station at nearly as moderate a price as at the coal pit.

Specimens of the ore will be seen at the mines, and information afforded on application to THOMAS C. BORTHWICK, Esq., Hopsgreen, by Langholm; or Messrs. CAMPBELL, ESPIE, and BELL, W.S., 6, Rutland-square, Edinburgh; or Messrs. JOHN and G. H. GEDDES, Mining Engineers, 9, Melville-crescent, Edinburgh.

TO BE LET, THE ANTIMONY MINES OF GLENDINNING, near LANGHOLM, the property of Sir FREDERIC JOHN WILLIAM JOHN STONE, of Westerhall, Baronet.

TO BE LET, and entered upon in February next, a VALUABLE CARBONIFEROUS LIMESTONE QUARRY, LOW BISHOPLEY, FROSTERTON, county of DURHAM, contiguous to and connected by a branch line with the Wear Valley Railway.

Now in the occupation of Messrs. BOLCKOW, VAUGHAN, and Co. (Limited). Terms and further particulars may be had on application to Mr. R. F. MATHEWS, Shotton Hall, Ferryhill.—July 28, 1868.

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Wire rope ditto, free from acid, 15s. per cwt. Liquid ditto (between thick and thin), for trams, &c., 8s. to 12s. per cwt.

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From the very best quality of charcoal iron and steel wire.**PATENT FLAT AND ROUND HEMP ROPES.**

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WIRE ROPE FOR MINING, RAILWAY, and SHIPPING PURPOSES.
MANILLA ROPE OF SUPERIOR QUALITY, FIFTY PER CENT. STRONGER
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WIRE ROPE of FIRST QUALITY WIRE, and the HIGHEST STANDARD
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THE PROPRIETORS of this INVENTION, in order to bring its CAPABILITIES more prominently before the PUBLIC, are OPEN to TAKE CONTRACTS for DRIVING LEVELS.

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Mr. HENRY has had especial experience in technical French, and in French Manufacturing and Commercial Matters.

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MEAT BISCUIT FOR DOGS, made by the CARLISLE BISCUIT COMPANY, is undoubtedly the best, and cheapest food for dogs that has ever been introduced. It is equally adapted for sporting dogs, yard dogs, or for pets. It requires no cooking, and with any other food, keeps dogs in the highest condition. Many of the prize-winning dogs at the last Birmingham show were fed, from puppies, on this biscuit. Price 2s. per cwt. at Carlisle; or at their depôt, 5s. City-road, London, 2s. per cwt. Post-office orders payable to WILLIAM SLATER, Carlisle. Sold by corn chandlers everywhere. Book of testimonials from well-known country gentlemen, sent on application. Agents wanted.

WILLIAM SLATER, Managing Director.

THE MINING JOURNAL.

| SEPT. 19, 1868.

IMMENSE SAVING OF LABOUR.
TO MINERS, IRONMASTERS, MANUFACTURING CHEMISTS, RAILWAY COMPANIES, EMERY AND FLINT GRINDERS, MCADAM ROAD MAKERS, &c., &c.**BLAKE'S PATENT STONE BREAKER,**
OR ORE CRUSHING MACHINE,

FOR REDUCING TO SMALL FRAGMENTS ROCKS, ORES, AND MINERALS OF EVERY KIND.

It is rapidly making its way to all parts of the globe, being now in profitable use in California, Washoe, Lake Superior, Australia, Cuba, Chili, Brazil, and throughout the United States and England. Read extracts of testimonials:—

The Parys Mines Company, Parys Mines, near Bangor, June 6.—We have had

one of your stone breakers in use during the last twelve months, and Capital Morcom reports most favourably as to its capabilities of crushing the materials to the required size, and its great economy in doing away with manual labour.

For the Parys Mining Company, JAMES WILLIAMS.

H. R. Marsden, Esq.

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Welsh Gold Mining Company, Dolgelly.—The stone breaker does its work admirably, crushing the hardest stones and quartz. WM. DANIEL.

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Ovoca, Ireland.—My crusher does its work most satisfactorily. It will break 10 tons of the hardest copper ore stone per hour. WM. G. ROBERTS.

General Frémont's Mines, California.—The 15 by 7 in. machine effects a saving of the labour of about 30 men, or \$75 per day. The high estimation in which we hold your invention is shown by the fact that Mr. Park has just ordered a third machine for this estate. SILAS WILLIAMS.

For circulars and testimonials, apply to

H. R. MARSDEN, SOHO FOUNDRY,
MEADOW LANE, LEEDS,
ONLY MAKER IN THE UNITED KINGDOM.**CAUTION!**
BLAKE'S PATENT STONE BREAKER,
In Chancery.
BLAKE v. ARCHER, NOVEMBER 12, 1867.

His Honour the Vice-Chancellor WOOD having found a VERDICT in FAVOUR of the PLAINTIFFS in the above Cause, establishing the VALIDITY of BLAKE'S PATENT, and made a DECREE for an INJUNCTION to RESTRAIN the DEFENDANTS, Messrs. THOMAS ARCHER and SON, of Dunston Engine-Works, near Gateshead-on-Tyne, from INFRINGING such PATENT, and ordering them to pay to the Plaintiffs the costs of the Suit.

ALL PERSONS are hereby CAUTIONED against MANUFACTURING, SELLING, or USING any STONE BREAKERS similar to BLAKE'S, which have not been manufactured by the Plaintiffs. Application will forthwith be made to the Court of Chancery for INJUNCTIONS AGAINST ALL PERSONS who may be found INFRINGING BLAKE'S PATENT after this notice.

SOLE MAKER IN ENGLAND,

H. R. MARSDEN, SOHO FOUNDRY, MEADOW LANE, LEEDS.

PARIS EXHIBITION, 1867. SILVER MEDALS, CLASSES 40-51.

AWARDED THE ONLY FIRST-CLASS MEDAL FOR CRUCIBLES.**THE PATENT PLUMBAGO CRUCIBLE COMPANY,**
SOLE MANUFACTURERS UNDER MORGAN'S PATENT,
BATTERSEA WORKS, LONDON, S.W.

These Crucibles (MORGAN'S PATENT) were the only ones to which Prize Medals were awarded in London, 1862; Dublin 1865; New Zealand, 1865; and Oporto, 1865.

They have been in use for many years in the English, Colonial, French, and other Foreign Mints; the English, French, and other Arsenals; and have been adopted by most of the large Engineers, Founders, and Refiners at Home and Abroad.

The capabilities which have for more than twelve years distinguished these Crucibles are:—

Their quality is uniform. They withstand the greatest heat without danger. Their average durability for Gold, Silver, Copper, and other ordinary metals is forty to fifty pourings, in some cases reaching one hundred. They never crack, and heat more rapidly than any other kind. One annealing only is required. Change of temperature has no effect. They can when hot from the furnace be dipped in cold water with safety. The saving of labour and metal is very great. (Messrs. BREEDON and BOOTH, Birmingham, testify to the saving of 1 ton 2 qrs, 21 lbs. 4 ozs. of metal in melting 73 tons 6 cwts. of brass.) In Steel Melting the saving of fuel has been demonstrated to amount to a ton and a half to every ton of steel fused. For Zinc they last longer than iron pots, and save the great loss which arises from mixture with iron. Those for Malleable Cast-iron show an average working of seven days, doing each day nearly double the work of any other crucible.

As these crucibles last much longer than any others, it follows that the saving of metal must be great, because to each worn crucible a quantity of metal adheres. In fact, comparing these with other crucibles, the saving of metal and fuel alone is more than equivalent to their cost.



A are made in sizes varying from 2 ozs. to any required capacity, and are marked by the quantity of kilograms they will contain; thus No. 100 will contain 60 kilograms.

B differ in shape, but correspond in all other respects with A, and are similarly marked.

C are marked in English pounds—thus, a crucible marked 60 will contain 60 lbs.

D are made expressly for steel in various sizes.

MORGAN'S PATENT CRUCIBLES

Can be made any shape or size required, and are stamped as below:—



Having secured new Patents
for our Manufacture, and to
prevent fraudulent Imitations,

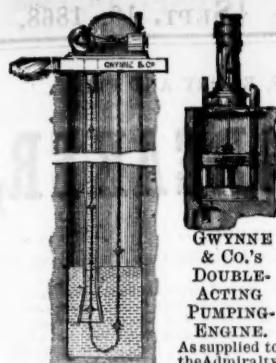
we call particular attention
to our Trade Mark, as here
shown.

It follows, with the persistence of a law, that originators should be beset by imitators, just as in the natural world the finest organic forms are most liable to parasitical growth.—Miss METEYARD's Life of Josiah Wedgwood, the Potter.

In all instances please specify "MORGAN'S PATENT," and address to—

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Complete Illustrated List forwarded on application.

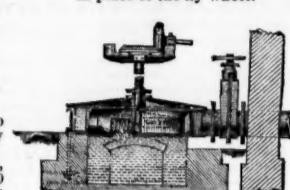


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A very neat and extremely compact arrangement; will work for years without getting out of order. These pumps are peculiarly adapted for mines, for which great numbers have been supplied in situations where no other pump could be applied for want of space. They are equally adapted for use as feed-pumps, by driving them with strap from a rigger in place of the fly-wheel.

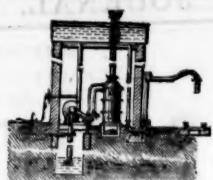


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ACTING
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Ass supplied to
the Admiralty
Graving
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to lift from 200
to 2000 gallons
per minute.
The engine is
of inverted
vertical cylinder
and piston
construction,
and require only very
inexpensive repairs.

These pumps work
without valves or
packing, and raise a
considerable quantity
of water. They will
lift sand, mud, or
grit without choking,
whole very
strong and
compact.



Compact, easy to erect, economical,
simple, and perfectly adapted to all
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1 to 300 horse. These turbines are
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Prices on receipt of particulars.



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PATENT COMBINED STEAM-PUMP,
As Applied to Railway Stations.
The vertical boiler supplies the engine with
steam, the pump discharging the water
lifted from the well into the tank above,
whence it may be drawn as occasion re-
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the carriages, as a fire-engine, &c.
Estimated given.

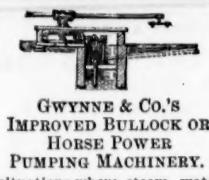
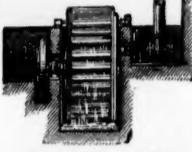


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Light, simple in construction, durable,
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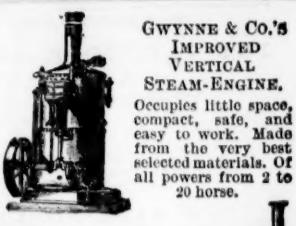
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Designed for
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men. Works continuously day and
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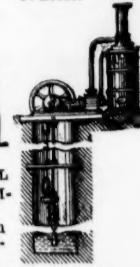


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For situations where steam, water, or
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VERTICAL
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Occupies little space,
compact, safe, and
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from the very best
selected materials. Of
all powers from 2 to
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Gwynne & Co.'s
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With or without expansion
gear, for economical work-
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Gwynne & Co.'s IMPROVED DEEP
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Worked direct by steam-engine at the mouth
of the well. This arrangement is invaluable
in situations where, from peculiar circum-
stances, the centrifugal pump is inapplicable.

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ELEVEN PRIZE MEDALS, taken at the Exhibitions of the Principal Cities of the World, TESTIFY TO THE GREAT EXCELLENCE OF THIS MACHINERY.

TO PREVENT MISTAKES, PLEASE ADDRESS IN FULL—
HYDRAULIC AND MECHANICAL

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MANUFACTURERS OF

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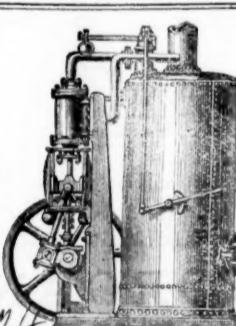
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From 2 to 20-horse power. Small sizes usually ready for delivery.

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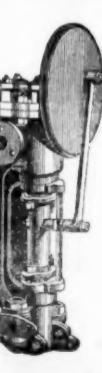
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| 7 | 2½ | 4 | 600 | 40 | 13 0 0 |
| *8 | 2½ | 4 | 900 | 60 | 15 10 0 |
| 9 | 2½ | 6 | 1200 | 75 | 17 0 0 |
| *10 | 2½ | 6 | 1800 | 120 | 19 0 0 |

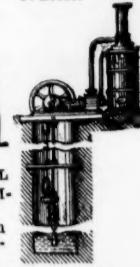


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For situations where steam, water, or
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out of order. From 1 to 6 horse power.



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Occupies little space,
compact, safe, and
easy to work. Made
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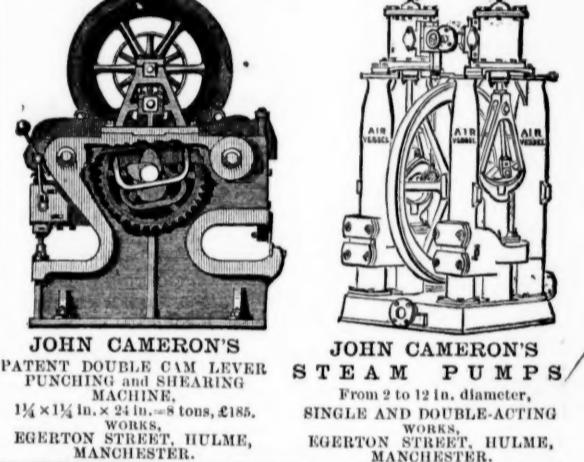
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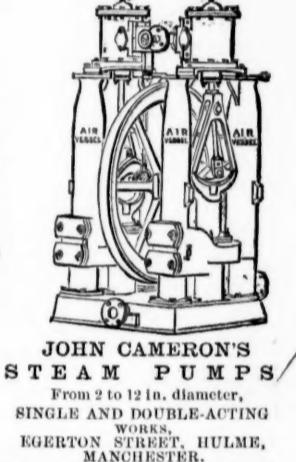
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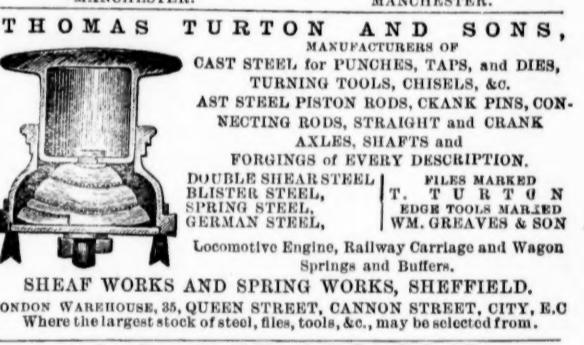
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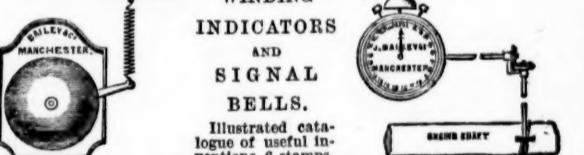
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